

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Sin J. Lee Examiner #: 76060 Date: 12/15/05
 Art Unit: 1752 Phone Number 302-1333 Serial Number: 10/765,919
 Mail Box and Bldg/Room Location: 9060 Results Format Preferred (circle): PAPER DISK E-MAIL
 (Rem.)

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Plz. Acc B.6

Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Plz. search for a polymer

which contains a repeat unit that

includes a substituent gp. of the
 formula (3) in Cl. #3

SCIENTIFIC REFERENCE BR
 Sci & Tech Inf. Ctr.

DEC 19 2005

Pat. & T.M. Office

STAFF USE ONLY

	Type of Search	Vendors and cost where applicable
Searcher: <u>WLA</u>	NA Sequence (#) _____	STN <u>8</u> <u>SDO-14</u>
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) <u>1</u>	Questel/Orbit _____
Date Searcher Picked Up: <u>12/22/05</u>	Bibliographic _____	Dr.Link _____
Date Completed: <u>12/22/05</u>	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: <u>30</u>	Fulltext _____	Sequence Systems _____
Clerical Prep Time: <u>30</u>	Patent Family _____	WWW/Internet _____
Online Time: <u>50</u>	Other _____	Other (specify) _____

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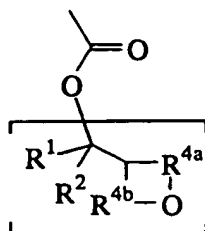


CONFIRMATION NO. 4118

SERIAL NUMBER 10/765,919	FILING DATE 01/29/2004 RULE	CLASS 430	GROUP ART UNIT 1752	ATTORNEY DOCKET NO. 0171-1058P					
APPLICANTS Jun Hatakeyama, Niigata-ken, JAPAN; Takanobu Takeda, Niigata-ken, JAPAN; Osamu Watanabe, Niigata-ken, JAPAN;									
** CONTINUING DATA ***** None SJL									
** FOREIGN APPLICATIONS ***** JAPAN 2003-021416 01/30/2003) SJL JAPAN 2003-194033 07/09/2003)									
IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 08/18/2005									
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 45%; vertical-align: top;"> Foreign Priority claimed <input checked="" type="checkbox"/> yes <input type="checkbox"/> no 35 USC 119 (a-d) conditions met <input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> Met after Allowance Verified and Acknowledged Examiner's Signature: <i>[Signature]</i> Initials: SJL </td> <td style="width: 15%; vertical-align: top;"> STATE OR COUNTRY JAPAN </td> <td style="width: 15%; vertical-align: top;"> SHEETS DRAWING 2 </td> <td style="width: 15%; vertical-align: top;"> TOTAL CLAIMS 13 </td> <td style="width: 10%; vertical-align: top;"> INDEPENDENT CLAIMS 4 </td> </tr> </table>					Foreign Priority claimed <input checked="" type="checkbox"/> yes <input type="checkbox"/> no 35 USC 119 (a-d) conditions met <input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> Met after Allowance Verified and Acknowledged Examiner's Signature: <i>[Signature]</i> Initials: SJL	STATE OR COUNTRY JAPAN	SHEETS DRAWING 2	TOTAL CLAIMS 13	INDEPENDENT CLAIMS 4
Foreign Priority claimed <input checked="" type="checkbox"/> yes <input type="checkbox"/> no 35 USC 119 (a-d) conditions met <input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> Met after Allowance Verified and Acknowledged Examiner's Signature: <i>[Signature]</i> Initials: SJL	STATE OR COUNTRY JAPAN	SHEETS DRAWING 2	TOTAL CLAIMS 13	INDEPENDENT CLAIMS 4					
ADDRESS 02292 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH , VA 22040-0747									
TITLE Polymer, resist composition and patterning process									
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%; vertical-align: top;"> FILING FEE RECEIVED </td> <td style="width: 40%; vertical-align: top;"> FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following: </td> </tr> </table>					FILING FEE RECEIVED	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:			
FILING FEE RECEIVED	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:								
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FILING FEE RECEIVED	<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time)								

carbon atoms, or R^1 and R^2 taken together may form an aliphatic hydrocarbon ring with the carbon atom to which they are attached.

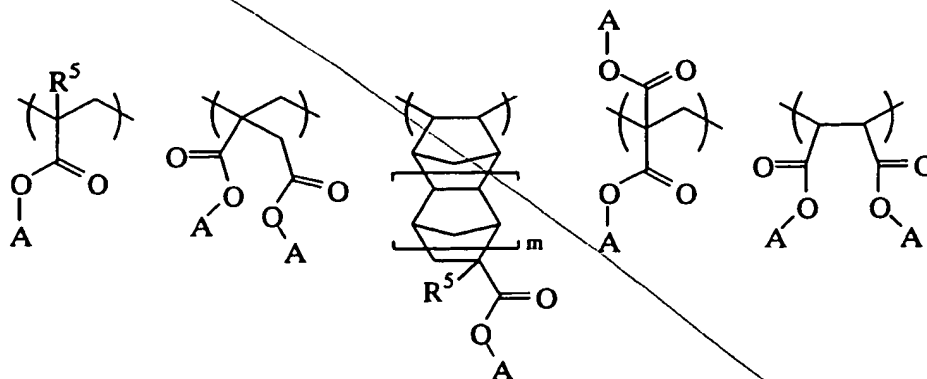
- 5 3. A polymer comprising recurring units containing silicon and recurring units having a substituent group of the general formula (3):



(3)

wherein R^1 and R^2 are independently selected from straight,
 10 branched or cyclic monovalent hydrocarbon groups of 1 to 10 carbon atoms, or R^1 and R^2 taken together may form an aliphatic hydrocarbon ring with the carbon atom to which they are attached, and R^{4a} and R^{4b} each are a single bond or an alkylene or alkenylene group of 1 to 4 carbon atoms, the
 15 total number of carbon atoms in R^{4a} and R^{4b} being from 3 to 6.

4. A polymer comprising recurring units containing silicon and recurring units of at least one type selected from the general formulae (4) to (8):



(4)

(5)

(6)

(7)

(8)

=> fil reg

FILE 'REGISTRY' ENTERED AT 11:04:02 ON 22 DEC 2005

=> d his

FILE 'HCAPLUS' ENTERED AT 09:06:02 ON 22 DEC 2005

L1 1 S US20050260521/PN
SEL RN

FILE 'REGISTRY' ENTERED AT 09:06:31 ON 22 DEC 2005

L2 12 S E1-E12

FILE 'LREGISTRY' ENTERED AT 09:40:05 ON 22 DEC 2005

L3 STR
L4 STR

FILE 'REGISTRY' ENTERED AT 09:43:41 ON 22 DEC 2005

L5 SCR 2043
L6 0 S L3 AND L4 AND L5
L7 0 S L3 AND L4
L8 SCR 1146 OR 1135
L9 2 S L3 AND L8
L10 STR L3
L11 0 S L10 AND L4
L12 2 S L10 AND L8
L13 2 S L10 AND L5 AND L8
L14 110 S L10 AND L5 AND L8 FUL
SAV L14 LEE919/A
L15 7 S L14 AND L2
L16 30 S L14 AND 103.61.1/RID
L17 13 S L14 AND 16.138.6/RID
L18 40 S L14 AND 16.138/RID
L19 STR L10
L20 1 S L19 AND L5 AND L8
L21 157 S L19 AND L5 AND L8 FUL
SAV L21 LEE919A/A
L22 167 S L14 OR L21
L23 33 S L22 AND 103.61/RID
L24 45 S L22 AND 16.138/RID

FILE 'HCAPLUS' ENTERED AT 10:32:56 ON 22 DEC 2005

L25 131 S L22
L26 11 S L23
L27 33 S L24
L28 34 S L26 OR L27
L29 97 S L25 NOT L28

FILE 'REGISTRY' ENTERED AT 10:35:45 ON 22 DEC 2005

L30 110 S L22 NOT 1-20/N

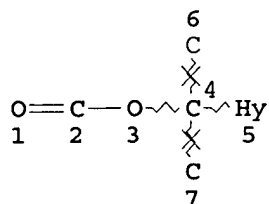
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L32 32 S L31 NOT L28
L33 34 S L31 AND PHOTOG?/SC
L34 1 S L33 NOT L28

=> d que 132

L5 SCR 2043

L8 SCR 1146 OR 1135
L10 STR



NODE ATTRIBUTES:

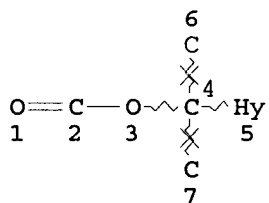
NSPEC IS RC AT 4
NSPEC IS RC AT 6
NSPEC IS RC AT 7
DEFAULT MLEVEL IS ATOM
GGCAT IS SAT AT 5
DEFAULT ECLEVEL IS LIMITED
ECOUNT IS X6 C AT 5

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE

L14 110 SEA FILE=REGISTRY SSS FUL L10 AND L5 AND L8
L19 STR



NODE ATTRIBUTES:

NSPEC IS RC AT 4
NSPEC IS RC AT 6
NSPEC IS RC AT 7
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED
ECOUNT IS X6 C X1 O AT 5

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 7

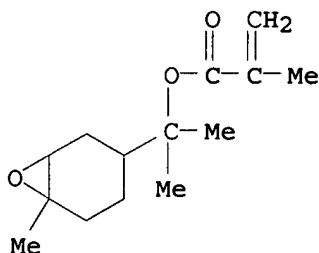
STEREO ATTRIBUTES: NONE

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L22 167 SEA FILE=REGISTRY ABB=ON PLU=ON L14 OR L21
L23 33 SEA FILE=REGISTRY ABB=ON PLU=ON L22 AND 103.61/RID
L24 45 SEA FILE=REGISTRY ABB=ON PLU=ON L22 AND 16.138/RID
L26 11 SEA FILE=HCAPLUS ABB=ON PLU=ON L23
L27 33 SEA FILE=HCAPLUS ABB=ON PLU=ON L24
L28 34 SEA FILE=HCAPLUS ABB=ON PLU=ON L26 OR L27
L30 110 SEA FILE=REGISTRY ABB=ON PLU=ON L22 NOT 1-20/N
L31 65 SEA FILE=HCAPLUS ABB=ON PLU=ON L30
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=> fil hcap
FILE 'HCAPLUS' ENTERED AT 11:04:19 ON 22 DEC 2005

=> d l32 ibib abs hitstr hitind

L32 ANSWER 1 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:548864 HCAPLUS
DOCUMENT NUMBER: 143:212270
TITLE: Photocrosslinking and thermal degradation of epoxy-containing polymers using photobase generators
AUTHOR(S): Ohba, Tadahiro; Nakai, Daisuke; Suyama, Kanji; Shirai, Masamitsu
CORPORATE SOURCE: Department of Applied Chemistry, Osaka Prefecture University, Osaka, 599-8531, Japan
SOURCE: Chemistry Letters (2005), 34(6), 818-819
CODEN: CMLTAG; ISSN: 0366-7022
PUBLISHER: Chemical Society of Japan
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A new system consisting of a photobase generator and an oligomer bearing both epoxy and tertiary ester units was prepared as a photocrosslinkable and thermally de-crosslinkable polymer system. The sample film became insol. on UV-irradiation and followed by baking at 100°-160°. The crosslinked film became soluble in methanol when baked at 180°-200°.
IT 354801-91-5
(photocrosslinking and thermal degradation of epoxy-containing polymethacrylate using photobase generators)
RN 354801-91-5 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, homopolymer (9CI) (CA INDEX NAME)
CM 1
CRN 354801-90-4
CMF C14 H22 O3



CC 35-8 (Chemistry of Synthetic High Polymers)
IT 354801-91-5
(photocrosslinking and thermal degradation of epoxy-containing polymethacrylate using photobase generators)
REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d 132 2-32 ibib abs hitstr hitind

L32 ANSWER 2 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:368209 HCAPLUS

DOCUMENT NUMBER: 142:431682

TITLE: Radiation-curable jet-printing inks having good discharge and storage stability and printed matter therewith

INVENTOR(S): Sasa, Nobumasa

PATENT ASSIGNEE(S): Konica Minolta Medical & Graphic, Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 20 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005112936	A2	20050428	JP 2003-346682	2003 1006

PRIORITY APPLN. INFO.:

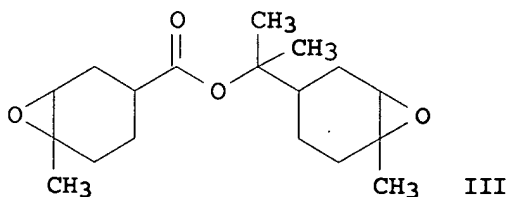
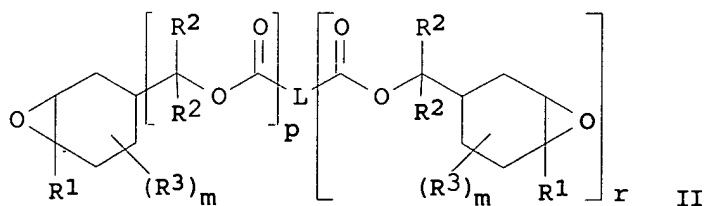
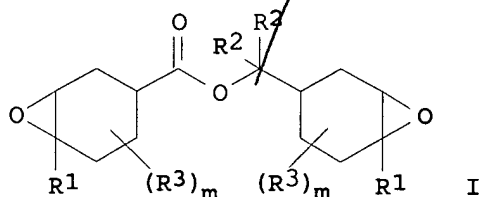
JP 2003-346682

2003
1006

OTHER SOURCE(S):

MARPAT 142:431682

GI



AB The inks contain alicyclic epoxide I and/or II [R1-R3 = substituent; m = 0-2; p = 0, 1; r = 1-3; L = C1-15 (r + 1)-valent linking group (containing S or O in the main chain) or single bond]. The inks may contain photocationic polymerization initiators, pigments, pigment dispersants, and satisfy viscosity (25°) 5-50 mPa-s. Thus, an ink containing epoxide III 30, OXT 221 (oxetane compound) 70, triethylene glycol divinyl ether 10, Solspers 32000 (dispersant) 3, and Adeka Optomer SP 152 (triphenylsulfonium salt) 10, and Cu phthalocyanine 5 parts showed no viscosity increase on 1-mo storage at 100°. no precipitation on 1-mo storage at 25°, and having no or less irritating action on skins.

IT 850421-69-1P 850421-71-5P 850421-73-7P
850421-75-9P 850421-77-1P 850427-47-3P

(alicyclic epoxide-containing photocurable jet inks having good discharge and storage stability)

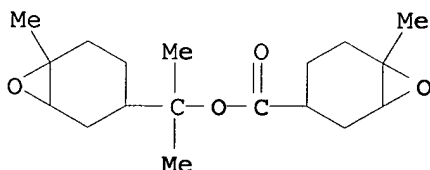
RN 850421-69-1 HCAPLUS

CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 6-methyl-,
1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester,
polymer with 3,3'-[oxybis(methylene)]bis[3-ethyloxetane] and
3,6,9,12-tetraoxatetradeca-1,13-diene (9CI) (CA INDEX NAME)

CM 1

CRN 850421-68-0

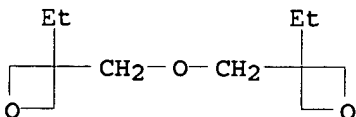
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CM 2

CRN 18934-00-4

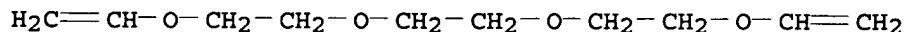
CMF C12 H22 O3



CM 3

CRN 765-12-8

CMF C10 H18 O4



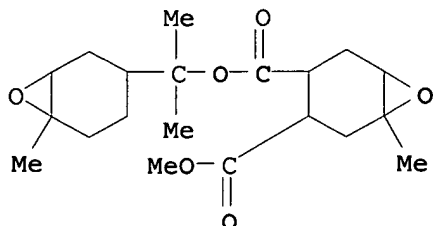
RN 850421-71-5 HCAPLUS

CN 7-Oxabicyclo[4.1.0]heptane-3,4-dicarboxylic acid, 1-methyl-, 3-methyl 4-[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with 3,3'-[oxybis(methylene)]bis[3-ethyloxetane] (9CI) (CA INDEX NAME)

CM 1

CRN 850421-70-4

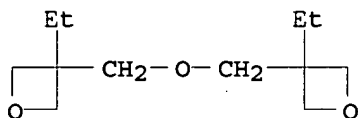
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CM 2

CRN 18934-00-4

CMF C12 H22 O3



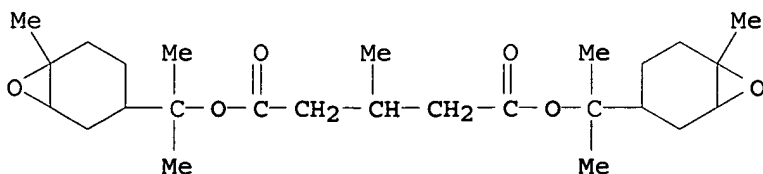
RN 850421-73-7 HCAPLUS

CN Pentanedioic acid, 3-methyl-, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with 3,3'-[oxybis(methylene)]bis[3-ethyloxetane] (9CI) (CA INDEX NAME)

CM 1

CRN 850421-72-6

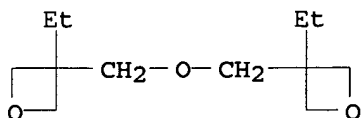
CMF C26 H42 O6



CM 2

CRN 18934-00-4

CMF C12 H22 O3



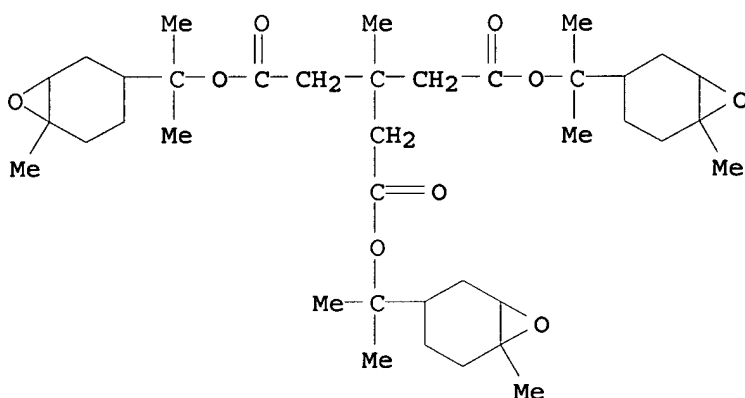
RN 850421-75-9 HCAPLUS

CN Pentanedioic acid, 3-methyl-3-[2-[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethoxy]-2-oxoethyl]-, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with 3,3'-[oxybis(methylene)]bis[3-ethyloxetane] and 3,6,9,12-tetraoxatetradeca-1,13-diene (9CI) (CA INDEX NAME)

CM 1

CRN 850421-74-8

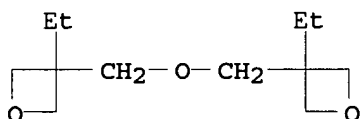
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CM 2

CRN 18934-00-4

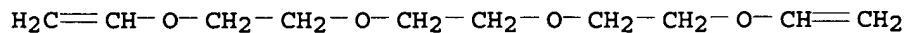
CMF C12 H22 O3



CM 3

CRN 765-12-8

CMF C10 H18 O4



RN 850421-77-1 HCAPLUS

CN Pentanedioic acid, 3,3-bis[2-[1-methyl-1-(6-methyl-7-

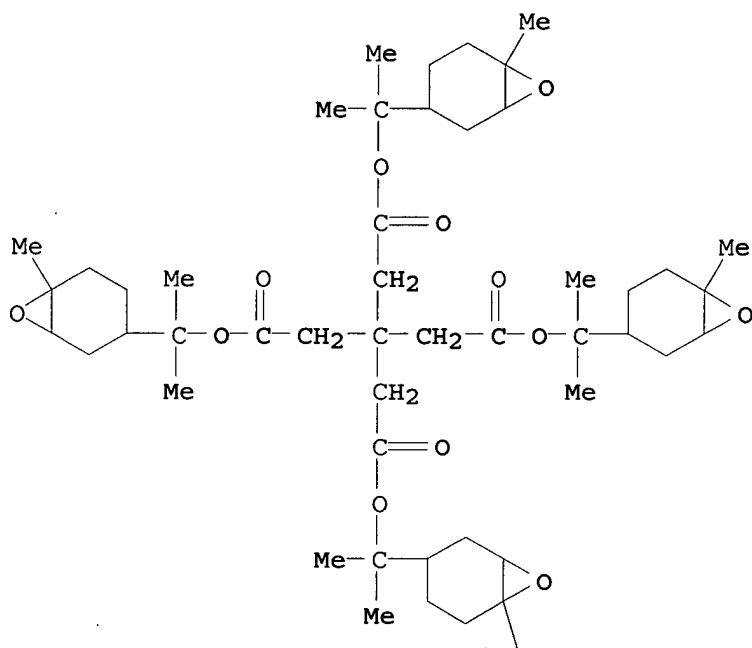
oxabicyclo[4.1.0]hept-3-yl)ethoxy]-2-oxoethyl]-,
 bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl]
 ester, polymer with 3-ethenyl-7-oxabicyclo[4.1.0]heptane,
 3,3'-[oxybis(methylene)]bis[3-ethyloxetane] and
 3,6,9,12-tetraoxatetradeca-1,13-diene (9CI) (CA INDEX NAME)

CM 1

CRN 850421-76-0

CMF C49 H76 O12

PAGE 1-A



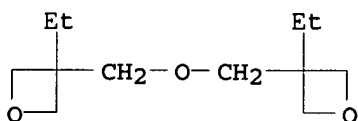
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CM 2

CRN 18934-00-4

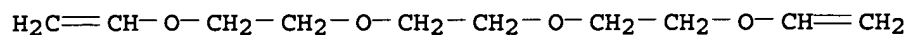
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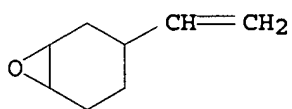
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CM 4

CRN 106-86-5

CMF C8 H12 O



RN 850427-47-3 HCAPLUS

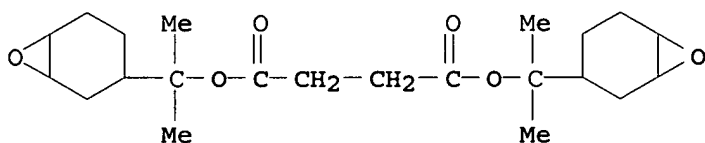
CN Butanedioic acid, bis[1-methyl-1-(methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with 3,3'-[oxybis(methylene)]bis[3-ethyloxetane] (9CI) (CA INDEX NAME)

CM 1

CRN 850427-46-2

CMF C24 H38 O6

CCI IDS

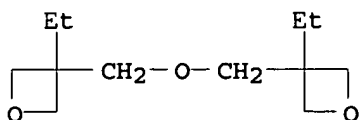


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CM 2

CRN 18934-00-4

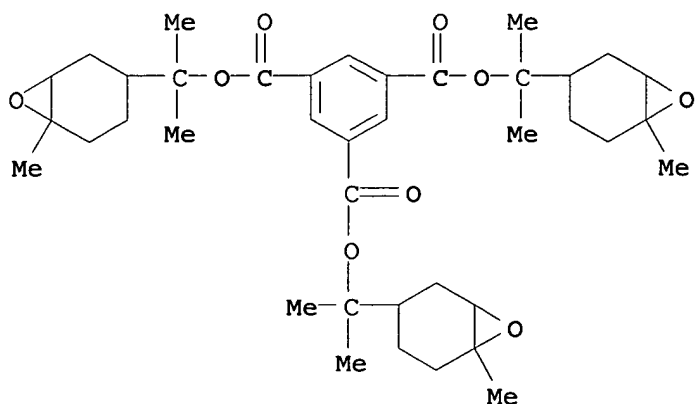
CMF C12 H22 O3



IC ICM C09D011-00

ICS B41J002-01; B41M005-00
CC 42-12 (Coatings, Inks, and Related Products)
Section cross-reference(s): 74
IT 850421-69-1P 850421-71-5P 850421-73-7P
850421-75-9P 850421-77-1P 850427-47-3P
(alicyclic epoxide-containing photocurable jet inks having good
discharge and storage stability)

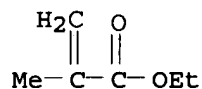
L32 ANSWER 3 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:603452 HCAPLUS
DOCUMENT NUMBER: 141:261432
TITLE: Photocrosslinking system using multifunctional
epoxy crosslinkers having thermally degradable
properties
AUTHOR(S): Okamura, Haruyuki; Shin, Kazuo; Tsunooka,
Masahiro; Shirai, Masamitsu
CORPORATE SOURCE: Department of Applied Chemistry, Graduate
School of Engineering, Osaka Prefecture
University, Osaka, 599-8531, Japan
SOURCE: Journal of Polymer Science, Part A: Polymer
Chemistry (2004), 42(15), 3685-3696
CODEN: JPACEC; ISSN: 0887-624X
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A novel thermally degradable photocrosslinking system was
investigated. Difunctional and trifunctional epoxides with
tertiary ester linkages were synthesized. When blended films of
epoxides and poly(vinyl phenol) or epoxides and poly(methacrylic
acid-co-Et methacrylate) with a photoacid generator were
irradiated and then baked at relatively low temps. (<100
°C), the films became insol. in solvents. The heating
conditions strongly affected the insol. fractions of the blends.
The insol. fractions of the blended films containing the trifunctional
epoxide were higher than the fractions of the films containing the
difunctional epoxide. The crosslinked films became soluble after
baking at relatively high temps. (>120 °C). The reaction
pathway of the blended system was studied with in situ Fourier
transform IR measurements.
IT 756819-40-6P 756819-41-7P 756819-43-9P
756819-44-0P
(photocrosslinking system using multifunctional epoxy
crosslinkers having thermally degradable properties)
RN 756819-40-6 HCAPLUS
CN 1,3,5-Benzenetricarboxylic acid, tris[1-methyl-1-(6-methyl-7-
oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with ethyl
2-methyl-2-propenoate and 2-methyl-2-propenoic acid (9CI) (CA
INDEX NAME)
CM 1
CRN 756819-39-3
CMF C39 H54 O9



CM 2

CRN 97-63-2

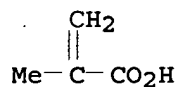
CMF C6 H10 O2



CM 3

CRN 79-41-4

CMF C4 H6 O2



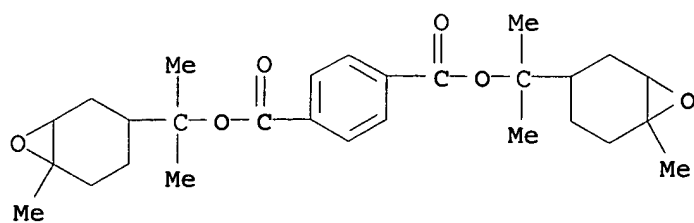
RN 756819-41-7 HCAPLUS

CN 1,4-Benzenedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with ethyl 2-methyl-2-propenoate and 2-methyl-2-propenoic acid (9CI) (CA INDEX NAME)

CM 1

CRN 444143-79-7

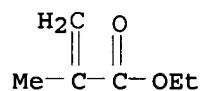
CMF C28 H38 O6



CM 2

CRN 97-63-2

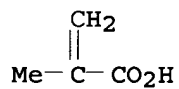
CMF C6 H10 O2



CM 3

CRN 79-41-4

CMF C4 H6 O2



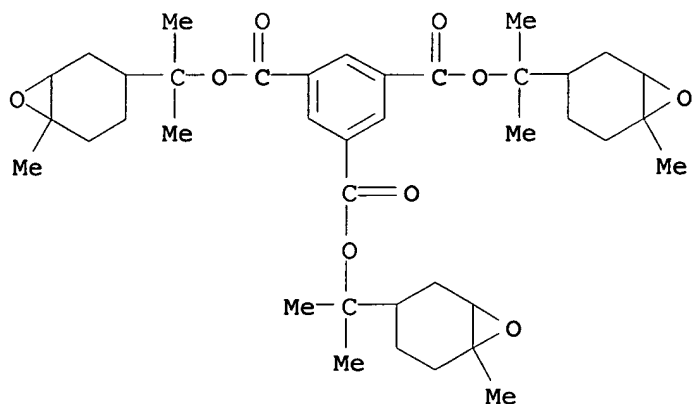
RN 756819-43-9 HCAPLUS

CN 1,3,5-Benzenetricarboxylic acid, tris[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 756819-39-3

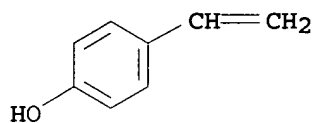
CMF C39 H54 O9



CM 2

CRN 2628-17-3

CMF C8 H8 O



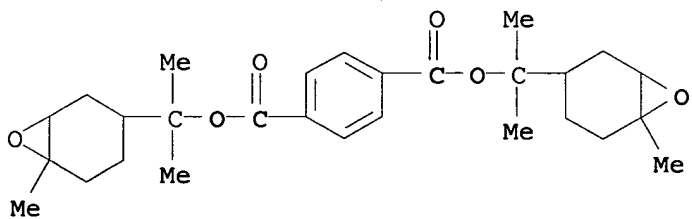
RN 756819-44-0 HCAPLUS

CN 1,4-Benzenedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 444143-79-7

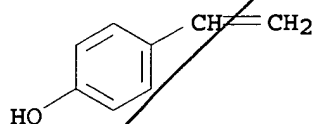
CMF C28 H38 O6



CM 2

CRN 2628-17-3

CMF C8 H8 O



CC 37-6 (Plastics Manufacture and Processing)

IT 756819-40-6P 756819-41-7P 756819-43-9P

756819-44-0P

(photocrosslinking system using multifunctional epoxy crosslinkers having thermally degradable properties)

REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L32 ANSWER 4 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:454829 HCAPLUS

DOCUMENT NUMBER: 141:261168

TITLE: Thermal degradation of photo crosslinked polymers

AUTHOR(S): Shirai, Masamitsu; Morishita, Satoshi; Kawaue, Akiya; Okamura, Haruyuki; Tsunooka, Masahiro

CORPORATE SOURCE: Department of Applied Chemistry, Graduate School of Engineering, Osaka Prefecture University, Osaka, 599-8531, Japan

SOURCE: ACS Symposium Series (2004), 874 (Polymers for Microelectronics and Nanoelectronics), 236-250
CODEN: ACSMC8; ISSN: 0097-6156

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A novel monomer having both epoxy and thermally cleaveable tertiary ester moieties was synthesized and characterized. Homopolymer and copolymers with tert-Bu methacrylate, tert-butoxy styrene or styrene sulfonates were synthesized. On UV irradiation the polymer films containing photo acid generators became insol. in organic solvents. When the crosslinked polymer films were baked at 100-220 °C, they became soluble in methanol. The effective baking temperature was strongly dependent on polymer structure. The crosslinked polymers having styrenesulfonic acid ester units became soluble in water after bake treatments.

IT 354801-91-5P 401928-96-9P 401928-97-0P

460085-60-3P 460085-61-4P 460085-62-5P

(thermal degradation of photo crosslinked polymers)

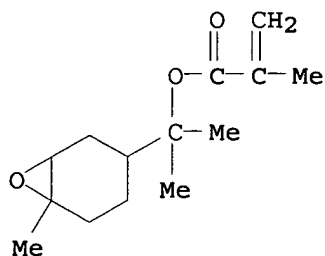
RN 354801-91-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

CMF C14 H22 O3



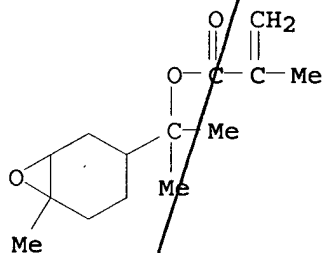
RN 401928-96-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with
1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl
2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

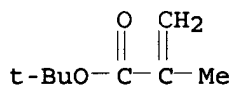
CMF C14 H22 O3



CM 2

CRN 585-07-9

CMF C8 H14 O2



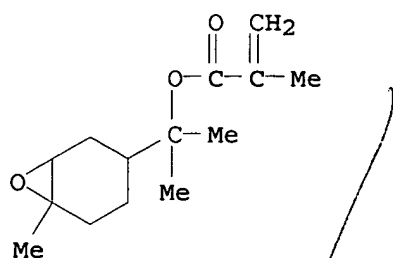
RN 401928-97-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with
1-(1,1-dimethylethoxy)-4-ethenylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

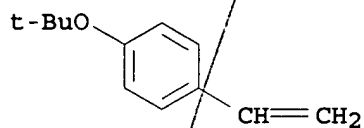
CMF C14 H22 O3



CM 2

CRN 95418-58-9

CMF C12 H16 O



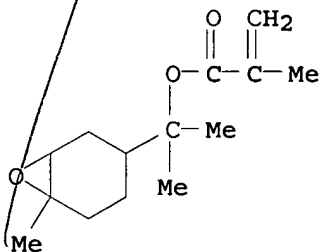
RN 460085-60-3 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with cyclohexyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

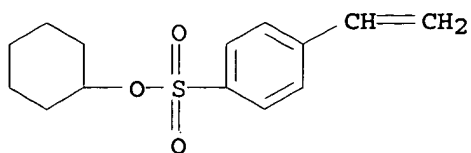
CMF C14 H22 O3



CM 2

CRN 211308-93-9

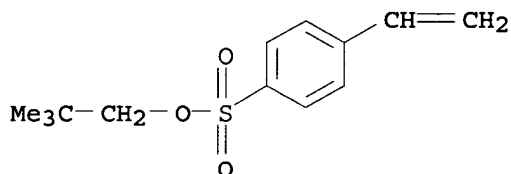
CMF C14 H18 O3 S



RN 460085-61-4 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with 2,2-dimethylpropyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

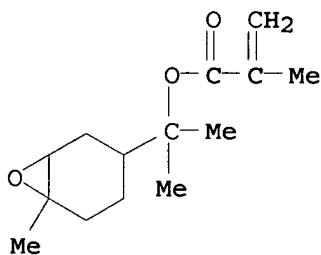
CM 1

CRN 443899-80-7
 CMF C13 H18 O3 S



CM 2

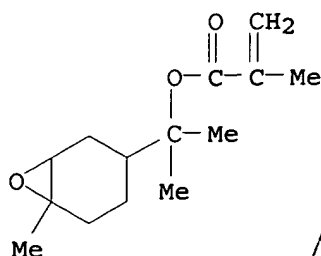
CRN 354801-90-4
 CMF C14 H22 O3



RN 460085-62-5 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with phenyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

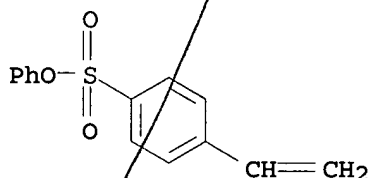
CRN 354801-90-4
 CMF C14 H22 O3



CM 2

CRN 20996-57-0

CMF C14 H12 O3 S



CC 35-8 (Chemistry of Synthetic High Polymers)

IT 354801-91-5P 401928-96-9P 401928-97-0P

460085-60-3P 460085-61-4P 460085-62-5P

(thermal degradation of photo crosslinked polymers)

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L32 ANSWER 5 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:138024 HCAPLUS

DOCUMENT NUMBER: 140:375920

TITLE: Controlled degradation of epoxy networks:
analysis of crosslink density and glass
transition temperature changes in thermally
reworkable thermosets

AUTHOR(S): Chen, Jir-Shyr; Ober, Christopher K.; Poliks,
Mark D.; Zhang, Yuanming; Wiesner, Ulrich;
Cohen, Claude

CORPORATE SOURCE: Department of Materials Science and
Engineering, Cornell University, Ithaca, NY,
14853, USA

SOURCE: Polymer (2004), 45(6), 1939-1950

CODEN: POLMAG; ISSN: 0032-3861

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The characteristics of networks formed in cured reworkable' epoxy
thermosets capable of controlled thermal degradation were studied.
Dynamic mech. thermal anal., swelling measurements, and glass
transition temperature measurements were used to obtain information
regarding the time and temperature dependence of the crosslink densities
of these materials. By applying isothermal conditions, networks

containing up to 36 mol% non-degradable components could be completely degraded, i.e. progress from a network of infinite mol. weight to a finite one with zero crosslink d. Percolation theory was used to facilitate the interpretation of these results. The degradation behavior of the reworkable thermosets were well-described by gel degradation theory, i.e. the reverse of the gelation process, and the exptl. results were in good agreement with calculated values obtained by replacing the extent of reaction, p , in Macosko and Miller's branching theory with the extent of degradation, $1-p$.

IT 195065-81-7, Hexahydro-4-methylphthalic
anhydride- α -Terp copolymer 683225-11-8

(anal. of crosslink d. and glass transition temperature changes in thermally reworkable epoxy thermosets during thermal degradation)

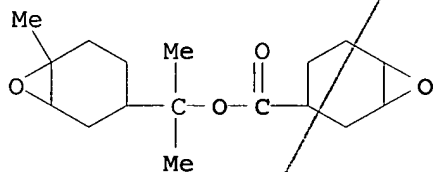
RN 195065-81-7 HCAPLUS

CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 195065-80-6

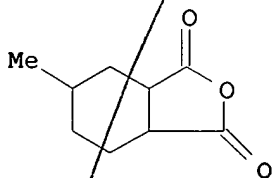
CMF C17 H26 O4



CM 2

CRN 19438-60-9

CMF C9 H12 O3



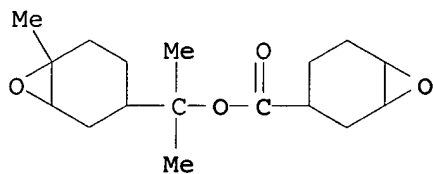
RN 683225-11-8 HCAPLUS

CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione and 7-oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate (9CI) (CA INDEX NAME)

CM 1

CRN 195065-80-6

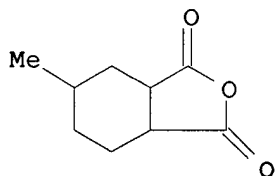
CMF C17 H26 O4



CM 2

CRN 19438-60-9

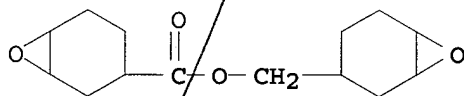
CMF C9 H12 O3



CM 3

CRN 2386-87-0

CMF C14 H20 O4



CC 37-5 (Plastics Manufacture and Processing)

IT 130030-49-8, ERL 4221-hexahydro-4-methylphthalic anhydride
 copolymer 195065-81-7, Hexahydro-4-methylphthalic
 anhydride- α -Terp copolymer 683225-11-8

(anal. of crosslink d. and glass transition temperature changes in
 thermally reworkable epoxy thermosets during thermal degradation)

REFERENCE COUNT: 47 THERE ARE 47 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L32 ANSWER 6 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:769109 HCAPLUS

DOCUMENT NUMBER: 139:277441

TITLE: Reworkable thermosetting resin compositions
 and compounds useful therein

INVENTOR(S): Klemarczyk, Philip T.; Gong, Lie-Zhong

PATENT ASSIGNEE(S): Henkel Loctite Corporation, USA

SOURCE: U.S., 17 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6627683	B1	20030930	US 2000-885270	2000 0905

PRIORITY APPLN. INFO.:

US 2000-885270

2000
0905

AB Specific compds. useful in curable compns. as well as thermosets that are reworkable through thermal decomposition, include a cyclic hydrocarbon moiety including an oxirane or thiirane group and an aromatic ether moiety including an oxirane or thiirane group. The cyclic hydrocarbon moiety and the aromatic ether moiety are joined to each other through an oxycarbonyl-containing linkage or a thiocarbonyl-containing linkage, preferably a secondary or tertiary linkage. Compns. incorporating such compds. are capable of curing by exposure to a specific temperature, and are decomposable at a temperature in excess of the curing temperature, thus providing a composition which is reworkable.

IT 604810-53-9P

(reworkable thermosetting resin compns. and compds. useful therein)

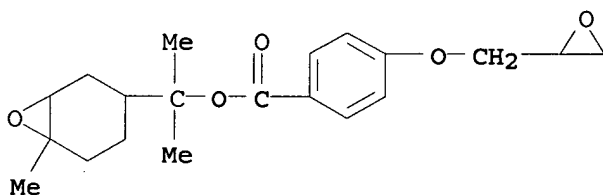
RN 604810-53-9 HCAPLUS

CN Benzoic acid, 4-(oxiranylmethoxy)-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with hexahydromethyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 604810-52-8

CMF C20 H26 O5

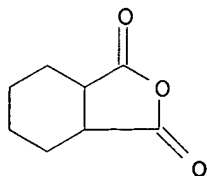


CM 2

CRN 25550-51-0

CMF C9 H12 O3

CCI IDS



D1-Me

IC ICM C08K003-10
ICS C08L063-02
INCL 523457000; 523458000; 523466000; 528094000; 528099000; 528103000;
528378000; 528379000; 528380000; 549090000
CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 38
IT 604810-53-9P
(reworkable thermosetting resin compns. and compds. useful
therein)
REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L32 ANSWER 7 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:738540 HCAPLUS
DOCUMENT NUMBER: 139:365370
TITLE: Photo-cross-linkable Polymers Having
Degradable Properties on Heating
AUTHOR(S): Shirai, Masamitsu; Kawaue, Akiya; Okamura,
Haruyuki; Tsunooka, Masahiro
CORPORATE SOURCE: Department of Applied Chemistry Graduate
School of Engineering, Osaka Prefecture
University, Sakai Osaka, 599-8531, Japan
SOURCE: Chemistry of Materials (2003), 15(21),
4075-4081
CODEN: CMATEX; ISSN: 0897-4756
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Photo-cross-linkable polymers having degradable properties on
heating were described. Copolymers of esters or salts of
p-styrenesulfonic acid with a novel monomer having both an epoxy
moiety and a tertiary ester moiety were synthesized and
characterized. Polymer films containing a photoacid generator became
insol. in organic solvents on UV irradiation The insol. fraction of the
irradiated films was increased by post-exposure-baking at
relatively low temps. (40-100 °C). When the cross-linked
polymer films were baked at 120-200 °C, they became soluble in
water. The effective bake temperature was dependent on the polymer
structure. Thermal degradation of the cross-linked polymers was
studied by TGA anal. and in situ FT-IR spectroscopy.

IT 460085-60-3P 460085-61-4P 460085-62-5P
476445-52-0P
(photo-cross-linkable polymers having degradable properties on
heating)

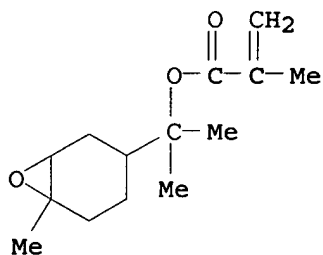
RN 460085-60-3 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-

oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with cyclohexyl
4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

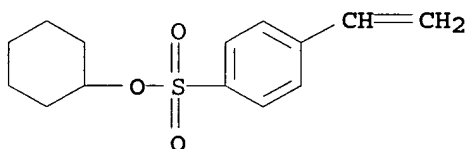
CMF C14 H22 O3



CM 2

CRN 211308-93-9

CMF C14 H18 O3 S



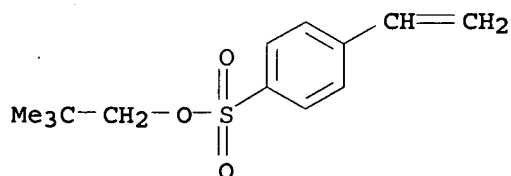
RN 460085-61-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with 2,2-dimethylpropyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 443899-80-7

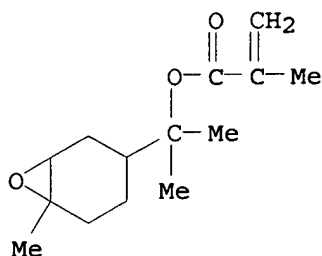
CMF C13 H18 O3 S



CM 2

CRN 354801-90-4

CMF C14 H22 O3



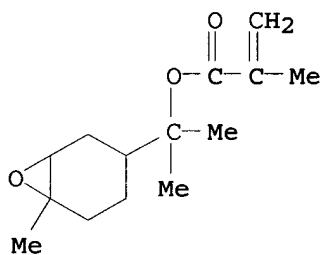
RN 460085-62-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with phenyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

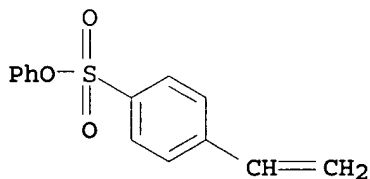
CMF C14 H22 O3



CM 2

CRN 20996-57-0

CMF C14 H12 O3 S



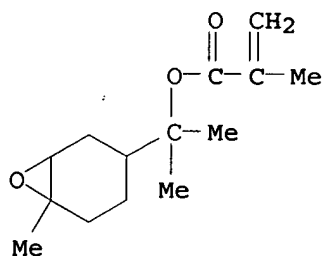
RN 476445-52-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with methyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

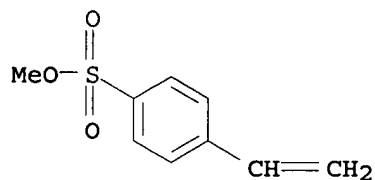
CMF C14 H22 O3



CM 2

CRN 16736-97-3

CMF C9 H10 O3 S



IT 460085-60-3DP, photocrosslinked, thermal degraded
 460085-61-4DP, photocrosslinked, thermal degraded
 460085-62-5DP, photocrosslinked, thermal degraded
 476445-52-0DP, photocrosslinked, thermal degraded
 (photo-cross-linkable polymers having degradable properties on heating)

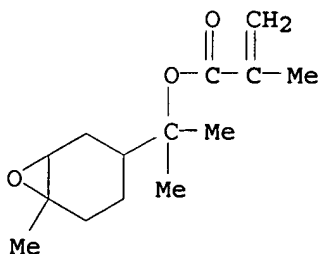
RN 460085-60-3 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with cyclohexyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

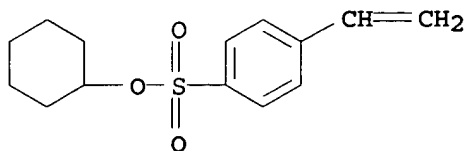
CMF C14 H22 O3



CM 2

CRN 211308-93-9

CMF C14 H18 O3 S



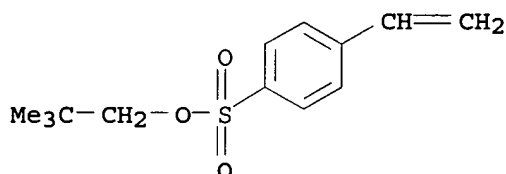
RN 460085-61-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with 2,2-dimethylpropyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 443899-80-7

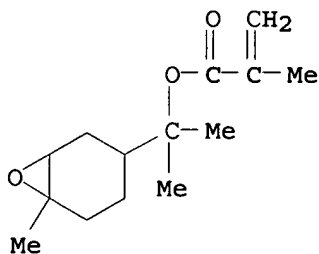
CMF C13 H18 O3 S



CM 2

CRN 354801-90-4

CMF C14 H22 O3



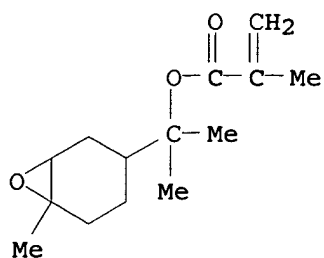
RN 460085-62-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with phenyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

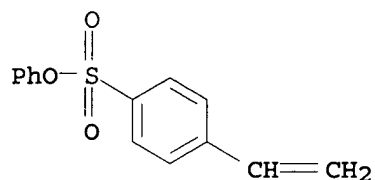
CMF C14 H22 O3



CM 2

CRN 20996-57-0

CMF C14 H12 O3 S



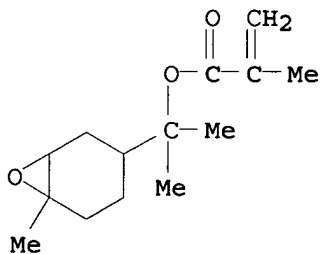
RN 476445-52-0 HCAPLUS

CM 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with methyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

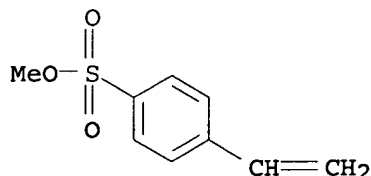
CMF C14 H22 O3



CM 2

CRN 16736-97-3

CMF C9 H10 O3 S



CC 35-8 (Chemistry of Synthetic High Polymers)

IT 460085-60-3P 460085-61-4P 460085-62-5P

476445-52-0P 622851-55-2P

(photo-cross-linkable polymers having degradable properties on heating)

IT 460085-60-3DP, photocrosslinked, thermal degraded

460085-61-4DP, photocrosslinked, thermal degraded

460085-62-5DP, photocrosslinked, thermal degraded

476445-52-0DP, photocrosslinked, thermal degraded

622851-55-2DP, photocrosslinked, thermal degraded

(photo-cross-linkable polymers having degradable properties on heating)

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L32 ANSWER 8 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:695061 HCAPLUS

DOCUMENT NUMBER: 138:4834

TITLE: Photocrosslinkable polymers with redissolution property

AUTHOR(S): Shirai, Masamitsu; Kawaue, Akiya; Okamura, Haruyuki; Tsunooka, Masahiro

CORPORATE SOURCE: Department of Applied Chemistry, Graduate School of Engineering, Osaka Prefecture University, Osaka, 599-8531, Japan

SOURCE: Chemistry Letters (2002), (9), 940-941
CODEN: CMLTAG; ISSN: 0366-7022

PUBLISHER: Chemical Society of Japan

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Polymers having both thermally degradable epoxy-containing moieties and sulfonic acid ester moieties in the side chain were prepared and characterized. On UV irradiation the polymer films containing photoacid generators became insol. The crosslinked polymer films became soluble in water after bake treatment at 120-200°C.

IT 460085-60-3DP, photocrosslinking, then thermal degradation

460085-61-4DP, photocrosslinking, then thermal degradation

460085-62-5DP, photocrosslinking, then thermal degradation

476445-52-0DP, photocrosslinking, then thermal degradation

(photocrosslinkable polymers with redissoln. property)

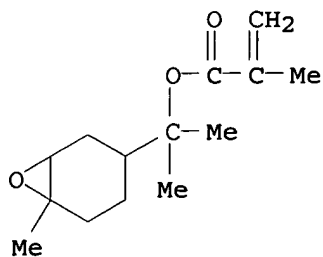
RN 460085-60-3 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with cyclohexyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

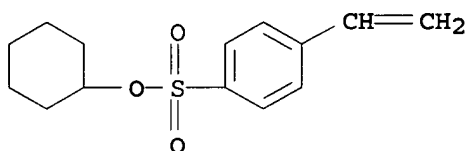
CMF C14 H22 O3



CM 2

CRN 211308-93-9

CMF C14 H18 O3 S



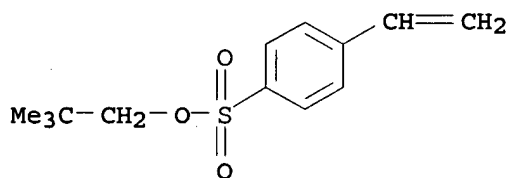
RN 460085-61-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with 2,2-dimethylpropyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 443899-80-7

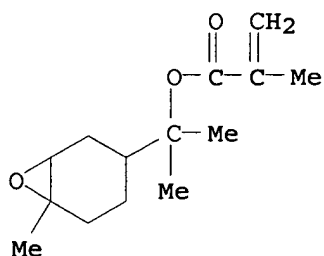
CMF C13 H18 O3 S



CM 2

CRN 354801-90-4

CMF C14 H22 O3



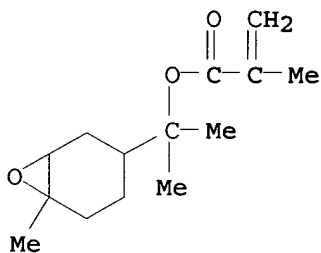
RN 460085-62-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with phenyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

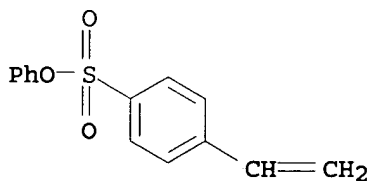
CMF C14 H22 O3



CM 2

CRN 20996-57-0

CMF C14 H12 O3 S



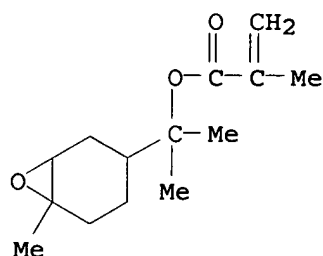
RN 476445-52-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with methyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

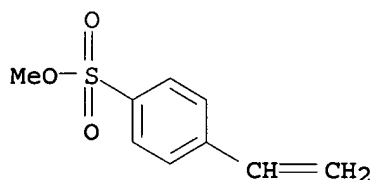
CMF C14 H22 O3



CM 2

CRN 16736-97-3

CMF C9 H10 O3 S



CC 35-4 (Chemistry of Synthetic High Polymers)

IT 460085-60-3DP, photocrosslinking, then thermal degradation

460085-61-4DP, photocrosslinking, then thermal degradation

460085-62-5DP, photocrosslinking, then thermal degradation

476445-52-0DP, photocrosslinking, then thermal degradation

(photocrosslinkable polymers with redissoln. property)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L32 ANSWER 9 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:559997 HCAPLUS

DOCUMENT NUMBER: 137:248280

TITLE: Thermally degradable photocrosslinking polymers

AUTHOR(S): Shirai, Masamitsu; Morishita, Satoshi; Kawaue, Akiya; Okamura, Haruyuki; Tsunooka, Masahiro

CORPORATE SOURCE: Department of Applied Chemistry, Graduate School of Engineering, Osaka Prefecture University, Osaka, 599-8531, Japan

SOURCE: PMSE Preprints (2002), 87, 384-386

CODEN: PPMRA9; ISSN: 1550-6703

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal; (computer optical disk)

LANGUAGE: English

AB Since photochem. crosslinked polymers are insol. and infusible networks, scratching or chemical treatments with strong acid or base must be applied to remove these networks from substrates.

However, crosslinked polymers are difficult or impossible to thoroughly remove without damaging underlying materials. In this study we have synthesized polymers having both epoxy moieties and thermally cleavable tertiary ester moieties in the side chain. On

UV irradiation, the polymer films containing photo-acid generators became insol. in organic solvents. When the crosslinked polymer films were baked at 100-180 °C, they became soluble in methanol. The effective baking temperature was strongly dependent on polymer structure. The crosslinked polymers having styrene-sulfonic acid ester units became soluble in water after bake treatments. These polymers are important as a photocrosslinkable materials which can be removed by baking after use.

IT 354801-91-5P 401928-96-9P 401928-97-0P
460085-60-3P 460085-61-4P 460085-62-5P

(preparation of photo-crosslinkable polymers with thermally degradable property)

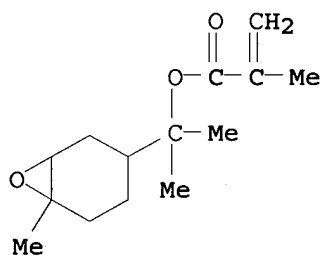
RN 354801-91-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

CMF C14 H22 O3



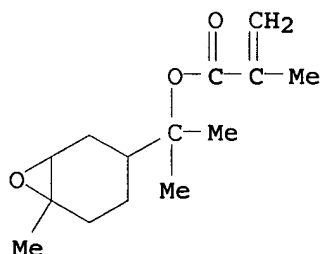
RN 401928-96-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

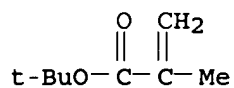
CMF C14 H22 O3



CM 2

CRN 585-07-9

CMF C8 H14 O2



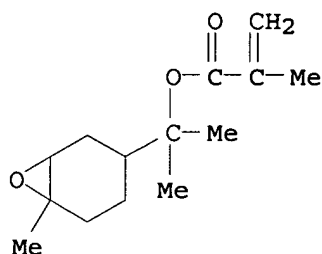
RN 401928-97-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with 1-(1,1-dimethylethoxy)-4-ethenylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

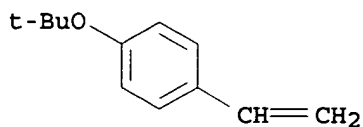
CMF C14 H22 O3



CM 2

CRN 95418-58-9

CMF C12 H16 O



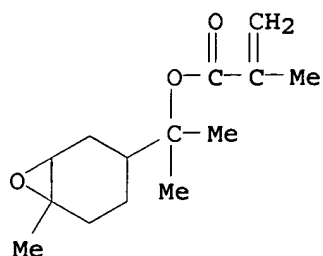
RN 460085-60-3 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with cyclohexyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

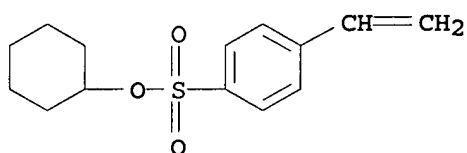
CMF C14 H22 O3



CM 2

CRN 211308-93-9

CMF C14 H18 O3 S



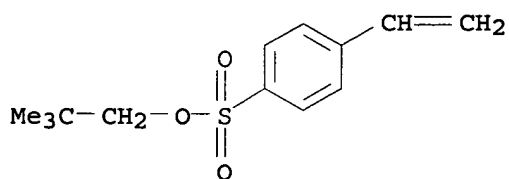
RN 460085-61-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with 2,2-dimethylpropyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 443899-80-7

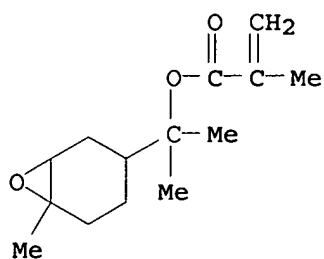
CMF C13 H18 O3 S



CM 2

CRN 354801-90-4

CMF C14 H22 O3



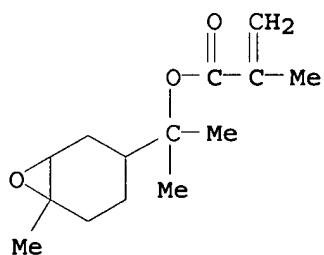
RN 460085-62-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with phenyl 4-ethenylbenzenesulfonate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

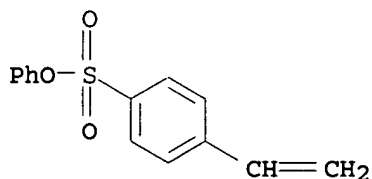
CMF C14 H22 O3



CM 2

CRN 20996-57-0

CMF C14 H12 O3 S



CC 37-3 (Plastics Manufacture and Processing)

IT 354801-91-5P 401928-96-9P 401928-97-0P

460085-60-3P 460085-61-4P 460085-62-5P

(preparation of photo-crosslinkable polymers with thermally degradable property)

REFERENCE COUNT: 13

THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L32 ANSWER 10 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

USHA SHRESTHA EIC 1700 REM 4B28

ACCESSION NUMBER: 2002:386402 HCAPLUS
DOCUMENT NUMBER: 137:125487
TITLE: Syntheses and characterizations of thermally degradable epoxy resins. III
AUTHOR(S): Li, Haiying; Wang, Lejun; Jacob, Karl; Wong, C. P.
CORPORATE SOURCE: Packaging Research Center, School of Materials Science and Engineering, School of Textile & Fiber Engineering, Georgia Institute of Technology, Atlanta, GA, 30332, USA
SOURCE: Journal of Polymer Science, Part A: Polymer Chemistry (2002), 40(11), 1796-1807
CODEN: JPACEC; ISSN: 0887-624X
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB In flip-chip technol., the development of reworkable underfill materials has been one of the keys to the recovery of highly integrated and expensive board assembly designs through the replacement of defective chips. Two new diepoxides, one containing secondary ester linkages and the other containing tertiary ester linkages, that are thermally degradable below 300°, are synthesized. The secondary and tertiary ester diepoxides were synthesized in three and two steps, resp. Both compds. were characterized with NMR and Fourier-transform IR spectroscopy and formulated into underfill materials with an anhydride as the hardener and an imidazole as the catalyst. A dual-epoxy system was also formulated containing the tertiary ester diepoxide and a conventional aliphatic diepoxide, 3,4-epoxy cyclohexyl methyl-3,4-epoxycyclohexyl carboxylate (ERL-4221E), with the same hardener and catalyst. The curing kinetics of the formulas were studied with differential scanning calorimetry (DSC). Thermal properties of cured samples were characterized with DSC, thermogravimetric anal., and thermomech. anal. The dual-epoxy system showed a viscosity of 18.7 and 0.87 P at 25° and 100°, resp. The cured secondary, tertiary, and dual-epoxy formulas showed decomposition temps. around 265°, 190°, and 220°, glass transition temps. around 120°-140°, 110°-157°, and 140°-157°, and coeffs. of thermal expansion of 70, 72, and 64 ppm/°C below their glass-transition temps., resp. The shear strength of the cured dual-epoxy system decreased quickly with aging at 230°. The reworkability test showed that the removal of a chip underfilled with this material from the board was quite easy, and the residue on the board could be thoroughly removed with a mech. brush without obvious damage to the solder mask. The synthesized tertiary epoxide can be used as a reworkable underfill for flip-chip applications.

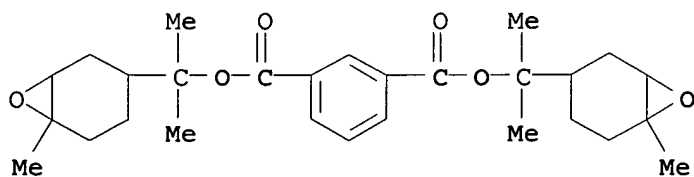
IT 298702-52-0P, Bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] isophthalate-4-methylhexahydrophthalic anhydride copolymer 298702-53-1P, Bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] isophthalate-ERL-4221E 4-methylhexahydrophthalic anhydride copolymer
(preparation of thermally degradable epoxy resins useful as reworkable underfill for flip-chip applications)

RN 298702-52-0 HCAPLUS
CN 1,3-Benzenedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 298702-51-9

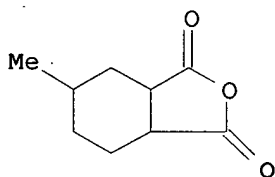
CMF C28 H38 O6



CM 2

CRN 19438-60-9

CMF C9 H12 O3



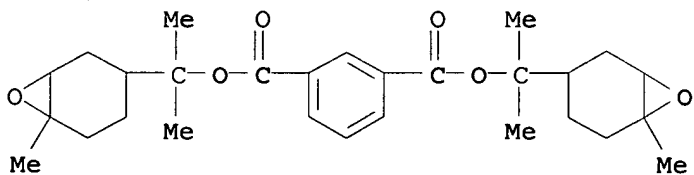
RN 298702-53-1 HCAPLUS

CN 1,3-Benzenedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione and 7-oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate (9CI) (CA INDEX NAME)

CM 1

CRN 298702-51-9

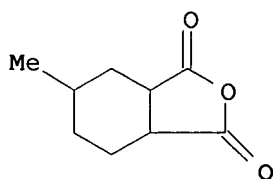
CMF C28 H38 O6



CM 2

CRN 19438-60-9

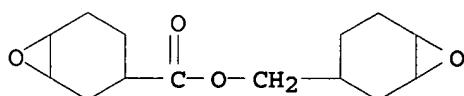
CMF C9 H12 O3



CM 3

CRN 2386-87-0

CMF C14 H20 O4



CC 35-7 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 37, 38

IT 298702-52-0P, Bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] isophthalate-4-methylhexahydrophthalic anhydride copolymer 298702-53-1P, Bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] isophthalate-ERL-4221E 4-methylhexahydrophthalic anhydride copolymer 429685-44-9P, Bis[1-(7-oxabicyclo[4.1.0]hept-3-yl)ethyl] isophthalate-4-methylhexahydrophthalic anhydride copolymer

(preparation of thermally degradable epoxy resins useful as reworkable underfill for flip-chip applications)

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L32 ANSWER 11 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:376079 HCAPLUS

DOCUMENT NUMBER: 137:279868

TITLE: Syntheses and characterizations of a controlled thermally degradable epoxy resin system for electronic packaging

AUTHOR(S): Li, Haiying; Wang, Lejun; Wong, C. P.

CORPORATE SOURCE: School of Materials Science and Engineering Packaging Research Center, Georgia Institute of Technology, Atlanta, GA, 30332, USA

SOURCE: Proceedings - International Symposium on Advanced Packaging Materials: Processes, Properties and Interfaces, Braselton, GA, United States, Mar. 11-14, 2001 (2001), Meeting Date 2001, 268-274. Institute of Electrical and Electronics Engineers: New York, N. Y.

CODEN: 69CPT9; ISBN: 0-930815-64-5

DOCUMENT TYPE: Conference

LANGUAGE: English

AB Two diepoxides with secondary and tertiary ester linkages that are thermally degradable below 300° were synthesized in three

and two steps, resp. Both compds. were characterized by NMR and FTIR spectroscopy and formulated into underfill materials with an anhydride as hardener and imidazole as catalyst. A dual-epoxy system was also formulated containing the tertiary ester diepoxide and a conventional aliphatic diepoxide, ERL-422IE, with the same hardener and catalyst. The curing kinetics of the materials was studied using DSC and thermal properties of cured samples were characterized by DSC, TGA, and TMA. The dual-epoxy system had viscosity of 18.7 and 0.87 P at 25° and 100°, resp. The cured secondary, tertiary, and dual-epoxy materials have decomposition temperature around 265°, 190° and 220°, glass transition temperature (Tg) around 120-140°, 110-157° and 140-157°, and CTE of 70 ppm/°, 72 ppm/°, and 64ppm/°, below Tg, resp. The shear strength of the cured dual-epoxy system decreased rapidly upon ageing at 230°. The reworkability tests showed that removal from the board of a chip underfilled with this material was quite easy, and the residue on the board could be thoroughly removed up with a mech. brush without obvious damage of the solder mask. The tertiary epoxide can be used as a reworkable underfill of flip-chips.

IT 298702-52-0P 298702-53-1P

(preparation and crosslinking and controlled thermal degradation of diepoxy resin system as underfill for electronic packaging)

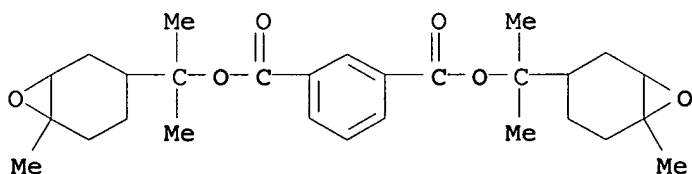
RN 298702-52-0 HCAPLUS

CN 1,3-Benzenedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 298702-51-9

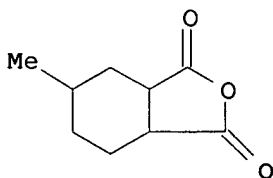
CMF C28 H38 O6



CM 2

CRN 19438-60-9

CMF C9 H12 O3



RN 298702-53-1 HCAPLUS

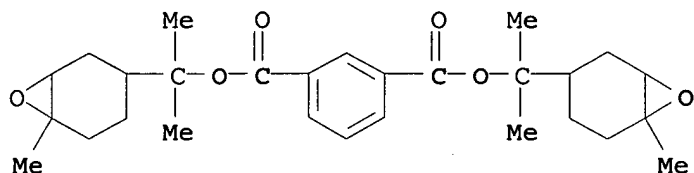
CN 1,3-Benzenedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-

oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with
hexahydro-5-methyl-1,3-isobenzofurandione and 7-
oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-
carboxylate (9CI) (CA INDEX NAME)

CM 1

CRN 298702-51-9

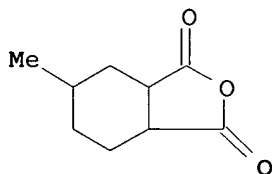
CMF C28 H38 O6



CM 2

CRN 19438-60-9

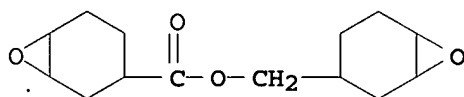
CMF C9 H12 O3



CM 3

CRN 2386-87-0

CMF C14 H20 O4



CC 37-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 76

IT 298702-52-0P 298702-53-1P 429685-44-9P

(preparation and crosslinking and controlled thermal degradation of
diepoxy resin system as underfill for electronic packaging)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L32 ANSWER 12 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:221231 HCAPLUS

DOCUMENT NUMBER: 136:248454

TITLE: No-flow reworkable epoxy underfill

compositions for protecting, encapsulating,
fabricating in flip-chip applications
INVENTOR(S): Wang, Lejun; Li, Haiying; Wong, Ching-ping
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 28 pp., Cont.-in-part
of U. S. Ser. No. 820,549.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002035201	A1	20020321	US 2001-860081	2001 0517
US 6570029	B2	20030527		
US 2002013420	A1	20020131	US 2001-820549	2001 0329
US 6498260	B2	20021224		
PRIORITY APPLN. INFO.:			US 2000-193356P	P 2000 0329
			US 2000-205590P	P 2000 0517
			US 2001-820549	A2 2001 0329

AB The encapsulant includes a cycloaliph. epoxide, an organic hardener, a curing accelerator, and a fluxing agent where the cycloaliph. epoxide includes a carbonate or carbamate group. The encapsulant can also include a filler, such as a SiO₂ filler.

IT 362513-25-5P
(no-flow reworkable carbonate or carbamate group-containing epoxy underfills for flip-chip applications)

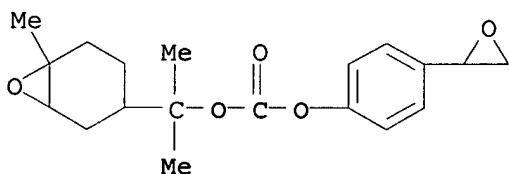
RN 362513-25-5 HCAPLUS

CN Carbonic acid, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl 4-oxiranylphenyl ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 362513-20-0

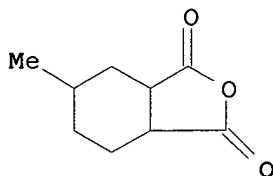
CMF C19 H24 O5



CM 2

CRN 19438-60-9

CMF C9 H12 O3



IC ICM C08G071-04

INCL 524873000

CC 37-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 38, 76

IT 244760-72-3P 244760-75-6P 244760-81-4P 244760-84-7P

244760-87-0P 244760-88-1P 307929-99-3P 307930-00-3P

307930-01-4P 362513-25-5P 362513-26-6P

(no-flow reworkable carbonate or carbamate group-containing epoxy underfills for flip-chip applications)

L32 ANSWER 13 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:11232 HCAPLUS

DOCUMENT NUMBER: 136:217428

TITLE: Photo-Cross-Linkable Polymers with Thermally Degradable Property

AUTHOR(S): Shirai, Masamitsu; Morishita, Satoshi; Okamura, Haruyuki; Tsunooka, Masahiro

CORPORATE SOURCE: Department of Applied Chemistry Graduate School of Engineering, Osaka Prefecture University, Sakai, Osaka, 599-8531, Japan

SOURCE: Chemistry of Materials (2002), 14(1), 334-340

CODEN: CMATEX; ISSN: 0897-4756

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Polymers having both epoxy moieties and thermally cleavable tertiary ester moieties in the side chain were synthesized and characterized. On UV irradiation, polymer films containing photoacid generators (PAG) such as 9-fluorenylideneimino p-toluenesulfonate (FITS) and triphenylsulfonium triflate (TPST) became insol. in THF. The insol. fraction of the irradiated films was increased by postexposure-baking at 90 °C if FITS was used as a PAG. When the crosslinked polymer films were baked at 160-180 °C, they became soluble in methanol. The effective baking temperature was dependent on the type of PAG used and on the polymer structure. Thermal degradation of the photochem. induced network polymers was studied by FT-IR spectroscopy, TGA anal., and film thickness changes.

IT 354801-91-5P 401928-96-9P 401928-97-0P

(preparation of photo-crosslinkable polymers with thermally degradable property)

RN 354801-91-5 HCAPLUS

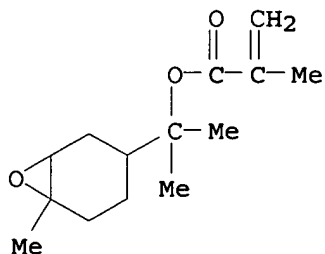
CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, homopolymer (9CI) (CA

INDEX NAME)

CM 1

CRN 354801-90-4

CMF C14 H22 O3



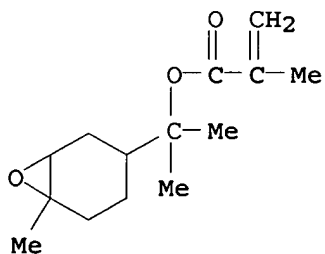
RN 401928-96-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with
 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl
 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

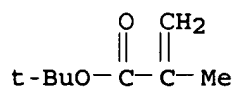
CMF C14 H22 O3



CM 2

CRN 585-07-9

CMF C8 H14 O2

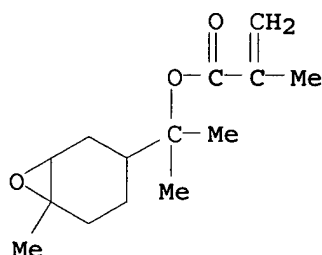


RN 401928-97-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with
 1-(1,1-dimethylethoxy)-4-ethenylbenzene (9CI) (CA INDEX NAME)

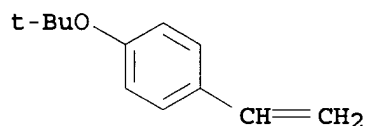
CM 1

CRN 354801-90-4
CMF C14 H22 O3



CM 2

CRN 95418-58-9
CMF C12 H16 O



CC 37-3 (Plastics Manufacture and Processing)
IT 354801-91-5P 401928-96-9P 401928-97-0P
401928-98-1P

(preparation of photo-crosslinkable polymers with thermally degradable property)

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L32 ANSWER 14 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:926207 HCAPLUS

DOCUMENT NUMBER: 136:402680

TITLE: Study of a controlled thermally degradable epoxy resin system for electronic packaging

AUTHOR(S): Li, Haiying; Wang, Lejun; Wong, C. P.

CORPORATE SOURCE: Packaging Research Center Georgia Institute of Technology, School of Materials Science and Engineering, Atlanta, GA, 30332, USA

SOURCE: Proceedings - Electronic Components & Technology Conference (2001), 51st, 1356-1361
CODEN: PETCES

PUBLISHER: Institute of Electrical and Electronics Engineers

DOCUMENT TYPE: Journal

LANGUAGE: English

AB This paper reports the synthesis, formulation and characterizations of two new diepoxides, one contains secondary and the other contains tertiary ester linkages that are thermally degradable below 300°. The secondary and the tertiary ester diepoxides were synthesized in three and two steps, resp. Both compds. were characterized with NMR and FT-IR spectroscopies,

and formulated into underfill materials with an anhydride as hardener and an imidazole as catalyst. A dual-epoxy system was also formulated containing the tertiary ester diepoxide and a conventional aliphatic diepoxide, ERL-4221E, with the same hardener and catalyst. The curing kinetics of the formulas was studied with differential scanning calorimetry (DSC). Thermal properties of cured samples were characterized with DSC, thermogravimetric anal. (TGA) and Thermomech. anal. (TMA). The dual-epoxy system showed a viscosity of 18.7, and 0.87P at 25° and 100°, resp. The cured secondary, tertiary and dual-epoxy formulas showed decomposition temps. around 265°, 190° and 220°, glass transition temps. (Tg) around 120°-140°, 110°-157° and 140°-157°, and CTE (coefficient of thermal expansion) of 70 ppm/°C, 72 ppm/°C and 64 ppm/°C below their Tg, resp. The shear strength of the cured dual-epoxy system decreased quickly upon being aged at 230°. The reworkability test showed that the removal from the board of a chip underfilled with this material was quite easy, and the residue on the board could be thoroughly removed with a mech. brush without obvious damage of the solder mask. The synthesized tertiary epoxide can be used as a reworkable underfill for flip-chip application.

IT 298702-52-0P, Bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] isophthalate-4-methylhexahydrophthalic anhydride copolymer 298702-53-1P, Bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] isophthalate-ERL 4221E-4-methylhexahydrophthalic anhydride copolymer
(preparation and properties of controlled thermally degradable epoxy resin system for electronic packaging)

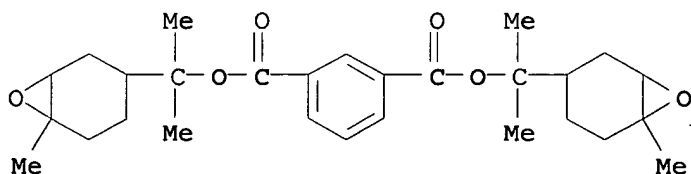
RN 298702-52-0 HCAPLUS

CN 1,3-Benzenedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 298702-51-9

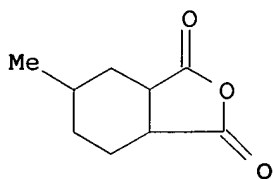
CMF C28 H38 O6



CM 2

CRN 19438-60-9

CMF C9 H12 O3



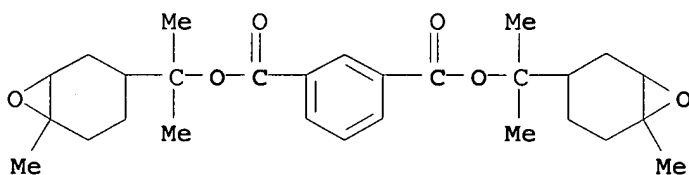
RN 298702-53-1 HCAPLUS

CN 1,3-Benzenedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione and 7-oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate (9CI) (CA INDEX NAME)

CM 1

CRN 298702-51-9

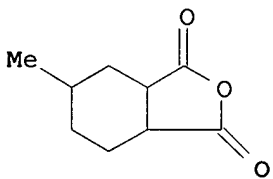
CMF C28 H38 O6



CM 2

CRN 19438-60-9

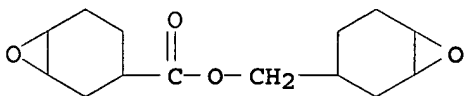
CMF C9 H12 O3



CM 3

CRN 2386-87-0

CMF C14 H20 O4



CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 37, 76

IT 298702-52-0P, Bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] isophthalate-4-methylhexahydrophthalic anhydride copolymer 298702-53-1P, Bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] isophthalate-ERL 4221E-4-methylhexahydrophthalic anhydride copolymer 429685-44-9P, Bis[1-(7-oxabicyclo[4.1.0]hept-3-yl)ethyl] isophthalate-4-methylhexahydrophthalic anhydride copolymer
(preparation and properties of controlled thermally degradable epoxy resin system for electronic packaging)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L32 ANSWER 15 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:851529 HCAPLUS

DOCUMENT NUMBER: 136:14026

TITLE: No-flow reworkable epoxy underfills for flip-chip applications

INVENTOR(S): Wang, Lejun; Wong, Ching-Ping; Li, Haiying

PATENT ASSIGNEE(S): Georgia Tech Research Corporation, USA

SOURCE: PCT Int. Appl., 50 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001088959	A2	20011122	WO 2001-US15843	2001 0517
WO 2001088959	A3	20020328		
W:				
AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW:				
GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 2002013420	A1	20020131	US 2001-820549	2001 0329
US 6498260	B2	20021224		
AU 2001064625	A5	20011126	AU 2001-64625	2001 0517
PRIORITY APPLN. INFO.:			US 2000-205590P	P
				2000 0517
			US 2001-820549	A
				2001 0329

US 2000-193356P P 2000
0329

WO 2001-US15843 W 2001
0517

AB A no-flow reworkable epoxy underfill is provided for use in an electronic packaged system which incorporates an integrated circuit, an organic printed wire board, and ≥ 1 eutectic solder joint formed there-between. An exemplary embodiment of the encapsulant includes: a cycloaliph. epoxide; an organic hardener; a curing accelerator; and a fluxing agent in which the cycloaliph. epoxide includes a carbonate or carbamate group. The encapsulant can also include a filler, such as a SiO₂ filler. A method is also provided for forming the aforementioned reworkable epoxy underfills.

IT 362513-25-5P
(no-flow reworkable epoxy underfills for flip-chip applications)

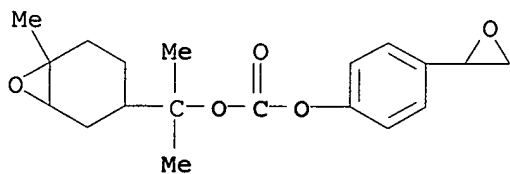
RN 362513-25-5 HCAPLUS

CN Carbonic acid, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl 4-oxiranylphenyl ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 362513-20-0

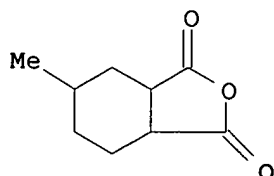
CMF C19 H24 O5



CM 2

CRN 19438-60-9

CMF C9 H12 O3



IC ICM H01L

CC 76-3 (Electric Phenomena)

Section cross-reference(s): 38

IT 244760-72-3P 244760-75-6P 244760-81-4P 244760-84-7P

244760-87-0P 244760-88-1P 307929-99-3P 307930-00-3P
307930-01-4P **362513-25-5P** 362513-26-6P
(no-flow reworkable epoxy underfills for flip-chip
applications)

L32 ANSWER 16 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:755208 HCAPLUS

DOCUMENT NUMBER: 136:70598

TITLE: Characterization of thermally re-workable
thermosets: materials for environmentally
friendly processing and reuse

AUTHOR(S): Chen, J.-S.; Ober, C. K.; Poliks, M. D.

CORPORATE SOURCE: Bard Hall, Department of Materials Science and
Engineering, Cornell University, Ithaca, NY,
14850, USA

SOURCE: Polymer (2001), Volume Date 2002, 43(1),
131-139

CODEN: POLMAG; ISSN: 0032-3861

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB In recent years, several research groups have created re-workable
thermoset systems. A prominent use of such materials is in
microelectronics packaging areas to enable the repair or
reprocessing of electronic components. A wider implication of
such an application is that it may facilitate the future recycling
or reuse of older computer systems. Recent studies indicate
millions of computers are discarded each year due to obsolescence
or other factors. The research presented here involves studies of
thermosets incorporating a cycloaliph. epoxy monomer that contains
a tertiary ester linkage. When part of a fully crosslinked
network, the re-workable epoxy unit will disconnect the network
under predetd. thermal conditions. We studied the chemical and
thermo-mech. breakdown mechanisms of the monomer and resulting
polymer networks as a function of their rework conditions. Via
anal. chemical techniques, the materials were found to degrade in a
controlled fashion consistent with prior polyester degradation
studies. Monitoring the change in glass transition temperature of the
materials under rework conditions yielded both kinetic and
mechanistic data of the degradation process, as well as providing
insight into the materials' mech. strength.

IT 195065-79-3P 195065-81-7P

(thermally re-workable thermosets as materials for
environmentally friendly processing and reuse)

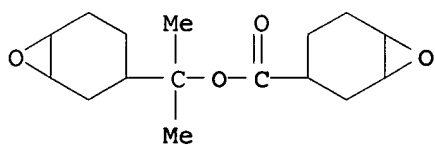
RN 195065-79-3 HCAPLUS

CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 1-methyl-1-(7-
oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with
hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 195065-78-2

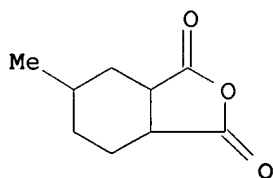
CMF C16 H24 O4



CM 2

CRN 19438-60-9

CMF C9 H12 O3



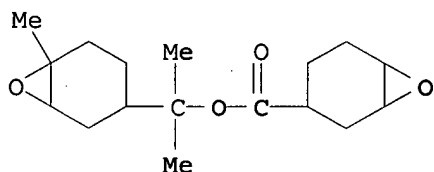
RN 195065-81-7 HCAPLUS

CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 195065-80-6

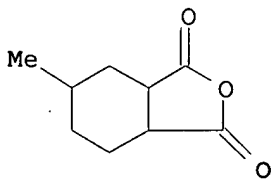
CMF C17 H26 O4



CM 2

CRN 19438-60-9

CMF C9 H12 O3



CC 37-6 (Plastics Manufacture and Processing)

IT 195065-79-3P 195065-81-7P

(thermally re-workable thermosets as materials for

environmentally friendly processing and reuse)
 REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L32 ANSWER 17 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2001:730881 HCAPLUS
 DOCUMENT NUMBER: 135:257990
 TITLE: Thermally degradable epoxy underfills for
 flip-chip applications
 INVENTOR(S): Wang, Lejun; Wong, Ching-Ping; Li, Haiying
 PATENT ASSIGNEE(S): Georgia Tech Research Corporation, USA
 SOURCE: PCT Int. Appl., 48 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 3
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001072898	A1	20011004	WO 2001-US10095	2001 0329

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA,
 CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB,
 GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,
 KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN,
 MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK,
 SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM,
 AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE,
 CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,
 PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR,
 NE, SN, TD, TG

AU 2001051096	A5	20011008	AU 2001-51096	2001 0329
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PRIORITY APPLN. INFO.: US 2000-193356P P
 2000
 0329

WO 2001-US10095 W
 2001
 0329

AB A reworkable epoxy underfill for use in electronic packaged system
 comprises a cycloaliph. epoxide, an organic hardener, and a curing
 accelerator, and optionally a filler, such as a silica filler.
 Thus, di-3,4-epoxycyclohexylmethyl carbonate/hexahydromethylphthal
 ic anhydride 1/0.8 mol and imidazole 1% were mixed to give a
 resin, showing Tg 176°, storage modulus 2.6 GPa, and
 viscosity (25°) 0.24 Pa.s.

IT 362513-25-5P
 (thermally degradable epoxy underfills for flip-chip
 applications)

RN 362513-25-5 HCAPLUS

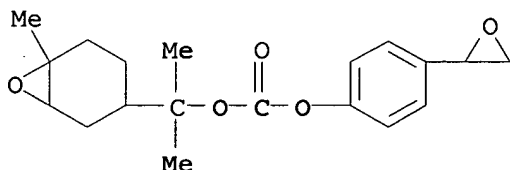
CN Carbonic acid, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-
 yl)ethyl 4-oxiranylphenyl ester, polymer with hexahydro-5-methyl-

1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 362513-20-0

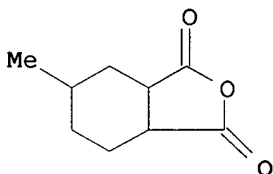
CMF C19 H24 O5



CM 2

CRN 19438-60-9

CMF C9 H12 O3



IC ICM C08L063-00

ICS C08G059-02

CC 37-6 (Plastics Manufacture and Processing)

IT 307930-01-4P 362513-25-5P

(thermally degradable epoxy underfills for flip-chip applications)

REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L32 ANSWER 18 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:602558 HCAPLUS

DOCUMENT NUMBER: 135:187711

TITLE: Acid-crosslinkable polymer with resolubility
after heating and photosensitive resin
composition using it in combination with
photoacid generator

INVENTOR(S): Shirai, Masamitsu; Kakuoka, Masahiro

PATENT ASSIGNEE(S): Foundation for Scientific Technology

Promotion, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2001226430

A2

20010821

JP 2000-34613

2000
0214

PRIORITY APPLN. INFO.:

JP 2000-34613

2000
0214

AB The polymer has chemical groups having acid-crosslinkable terminals, tertiary C or O of ester or aryl ether linkage directly linked to the chemical groups as its side chain. The composition showing photocrosslinkable and thermally decomposable properties is composed of the above polymer and a photoacid generator. Cured products of the composition can be modified to easily decomposable structures by heating under milder condition.

IT 354801-91-5P

(acid-crosslinkable polymer with resoly. after heating for photoresist using in combination with photoacid generator)

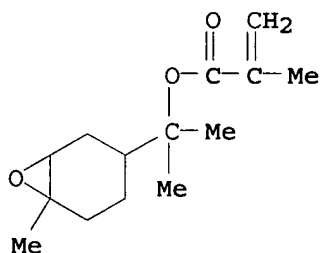
RN 354801-91-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 354801-90-4

CMF C14 H22 O3



IC ICM C08F020-28

ICS C08F002-48; C08F020-38; C08F030-08; C08J003-24; G03F007-038

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38

IT 354801-91-5P

(acid-crosslinkable polymer with resoly. after heating for photoresist using in combination with photoacid generator)

L32 ANSWER 19 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2000:700418 HCAPLUS

DOCUMENT NUMBER: 133:362992

TITLE: Syntheses and characterizations of thermally reworkable epoxy resins II

AUTHOR(S): Wang, Lejun; Li, Haiying; Wong, C. P.

CORPORATE SOURCE: School of Materials Science and Engineering and Packaging Research Center, Georgia Institute of Technology, Atlanta, GA, 30332, USA

SOURCE: Journal of Polymer Science, Part A: Polymer

Chemistry (2000), 38(20), 3771-3782

CODEN: JPACEC; ISSN: 0887-624X

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Flip-chip technol. is a face-down attachment of the active side of the silicon device onto the substrate. It is the ultimate packaging solution to integrated circuit devices used in 21st century electronic systems to meet the requirements of small size, high performance, and low cost. Underfill technol. enhances the flip chip on board cycle fatigue life and thus dramatically extends the application of flip-chip technol. in electronics from high-end to cost-sensitive commodity products. Reworkable underfill is the key to addressing the non-reworkability of the underfill, so it is very important to electronic packaging. To meet the need for reworkable epoxy resins, four cycloaliph. epoxides containing thermally breakable carbonate linkages have been synthesized and characterized. These materials are shown to undergo curing reactions with cyclic anhydride similarly to a com. cycloaliph. diepoxide. Furthermore, these cured epoxides start to decompose at temps. lower than 350°, the decomposition temperature for the cured sample of the com. cycloaliph. diepoxide. Two formulations based on two carbonate-containing diepoxides start network breakdown around 220°, which is the targeted rework temperature. Moreover, these two formulations have similar properties, including the glass-transition temperature, coefficient of thermal expansion, storage modulus, viscosity, and adhesion, compared to the standard com. diepoxide formulation. storage modulus. As such, these two formulations are potential candidates for a successful reworkable underfill.

IT 307930-02-5P

(syntheses and characterizations of thermally reworkable epoxy resins II)

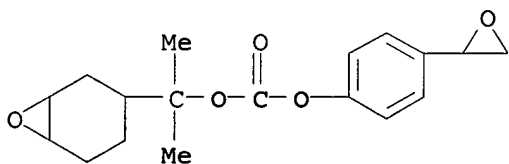
RN 307930-02-5 HCAPLUS

CN Carbonic acid, 1-methyl-1-(7-oxabicyclo[4.1.0]hept-3-yl)ethyl 4-oxiranylphenyl ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 307929-98-2

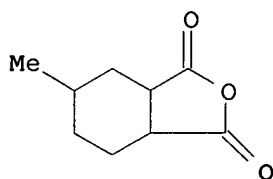
CMF C18 H22 O5



CM 2

CRN 19438-60-9

CMF C9 H12 O3



CC 35-2 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 38, 76

IT 307929-99-3P, Di-3,4-epoxycyclohexylmethyl Carbonate-4-methylhexahydrophthalic anhydride copolymer 307930-00-3P
307930-01-4P 307930-02-5P

(syntheses and characterizations of thermally reworkable epoxy resins II)

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L32 ANSWER 20 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2000:688295 HCAPLUS

DOCUMENT NUMBER: 133:267620

TITLE: Reworkable thermosetting resin compositions for sealing semiconductors

INVENTOR(S): Torres-Filho, Afranio; Crane, Lawrence N.; Konarski, Mark M.; Szczepaniak, Zbigniew A.

PATENT ASSIGNEE(S): Loctite Corporation, USA

SOURCE: PCT Int. Appl., 41 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000056799	A1	20000928	WO 2000-US7452	2000 0322

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

CA 2331790	AA	20000928	CA 2000-2331790	2000 0322
EP 1090057	A1	20010411	EP 2000-916567	2000 0322

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO

JP 2002540235

T2

20021126

JP 2000-606659

2000

0322

PRIORITY APPLN. INFO.:

US 1999-274943

A

1999

0323

WO 2000-US7452

W

2000

0322

OTHER SOURCE(S): MARPAT 133:267620

AB A thermosetting resin composition capable of sealing underfilling between a semiconductor device including a semiconductor chip mounted on a carrier substrate and a circuit board to which the semiconductor device is elec. connected, reaction products of which are capable of softening and losing their adhesiveness under exposure to temperature conditions in excess of those used to cure the composition, comprises: (a) an epoxy resin component, a portion of which comprises an epoxy compound having at least one thermally cleavable linkage; (b) optionally, an inorg. filler component; and (c) a curing agent component comprising a member selected from the group consisting of anhydride compds., amine compds., amide compds., imidazole compds., and combinations thereof. The thermosetting resin compns. are useful for mounting onto a circuit board semiconductor devices, such as chip size or chip scale packages ("CSPs"), ball grid arrays ("BGAs"), and the like, each of which having a semiconductor chip, such as large scale integration ("LSI"), on a carrier substrate. The compns. of this invention are reworkable when subjected to appropriate conditions.

IT 297765-36-7P

(reworkable thermosetting resin compns. for sealing semiconductors)

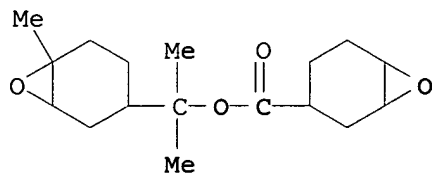
RN 297765-36-7 HCAPLUS

CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with hexahydro-1,3-isobenzofurandione, hexahydromethyl-1,3-isobenzofurandione and 2,2'-[methylenebis(phenyleneoxymethylene)]b is[oxirane] (9CI) (CA INDEX NAME)

CM 1

CRN 195065-80-6

CMF C17 H26 O4

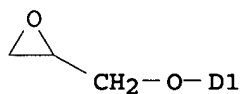
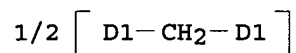


CM 2

CRN 39817-09-9

CMF C19 H20 O4

CCI IDS

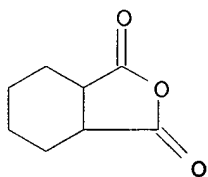


CM 3

CRN 25550-51-0

CMF C9 H12 O3

CCI IDS

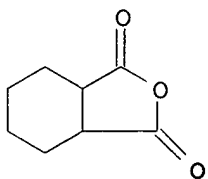


D1-Me

CM 4

CRN 85-42-7

CMF C8 H10 O3



IC ICM C08G059-24

ICS H01L021-56

CC 37-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 76

IT 297765-36-7P 297765-38-9P 297765-39-0P

(reworkable thermosetting resin compns. for sealing)

semiconductors)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L32 ANSWER 21 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2000:594240 HCAPLUS

DOCUMENT NUMBER: 133:297079

TITLE: Reworkable thermosets: enabling disassembly of
microelectronic components

AUTHOR(S): Chen, J. S.; Ober, C. K.; Poliks, M. D.

CORPORATE SOURCE: Department of Materials Science and
Engineering, Cornell University, Ithaca, NY,
14853, USASOURCE: Polymer Preprints (American Chemical Society,
Division of Polymer Chemistry) (2000), 41(2),
1842-1843

CODEN: ACPPAY; ISSN: 0032-3934

PUBLISHER: American Chemical Society, Division of Polymer
Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The breakdown mechanism of the monomer and networks from
 α -Terp epoxy resin (1-methyl-1-(6-methyl-7-
oxabicyclo[4.1.0]hept-3-yl)ethyl ester of 7-
Oxabicyclo[4.1.0]heptane-3-carboxylic acid) is studied. The resin
cleaves in a manner that enables reworkability in fully cured
thermoset networks that contain it. The relationship between
glass temperature and thermal treatment and the application in the
microelectronics are also discussed.

IT 195065-81-7

(breakdown mechanism of reworkable epoxy resin thermosets and
enabling disassembly of microelectronic components)

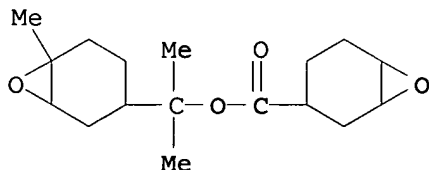
RN 195065-81-7 HCAPLUS

CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 1-methyl-1-(6-methyl-
7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with
hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 195065-80-6

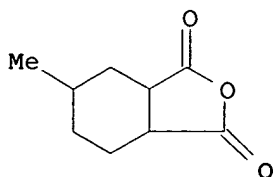
CMF C17 H26 O4



CM 2

CRN 19438-60-9

CMF C9 H12 O3



CC 37-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 76

IT 195065-81-7

(breakdown mechanism of reworkable epoxy resin thermosets and enabling disassembly of microelectronic components)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L32 ANSWER 22 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2000:566232 HCAPLUS

DOCUMENT NUMBER: 133:267406

TITLE: Synthesis and characterizations of a controlled thermally degradable epoxy resin system for electronic packaging

AUTHOR(S): Li, Haiying; Wang, Lejun; Jacob, Karl; Wong, C. P.

CORPORATE SOURCE: School of Textile & Fiber Engineering, Georgia Institute of Technology, Atlanta, GA, 30332, USA

SOURCE: Polymeric Materials Science and Engineering (2000), 83, 563-565

CODEN: PMSLED; ISSN: 0743-0515

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A new diepoxide containing tertiary ester linkage and a benzene ring was prepared and characterized with NMR and FTIR spectroscopies. This epoxy compound existed as a liquid at ambient temperature. This diepoxide and a dual-epoxy system composed with this diepoxide and another diepoxide were formulated and cured with an anhydride as hardener and imidazole as catalyst. The curing properties of this diepoxide and its dual-epoxy system were studied with DSC. Thermal properties of the cured resins of this diepoxide and its dual-epoxy system were characterized with DSC, TGA, and thermal mech. anal. The thermoset of the diepoxide showed a decomposition temperature around 200° and a glass temperature around 110-157°. The coefficient of thermal expansion (CTE) of the cured diepoxide resin was 72 ppm/°C. The curing formulated dual-epoxy system showed a viscosity of 18.7 P at room temperature and the cured resin of the dual-epoxy system showed a decomposition temperature around 220° and a glass temp., 140-157°. The CTE of the cured dual-epoxy system was 64 ppm/°C.

IT 298702-52-0P 298702-53-1P

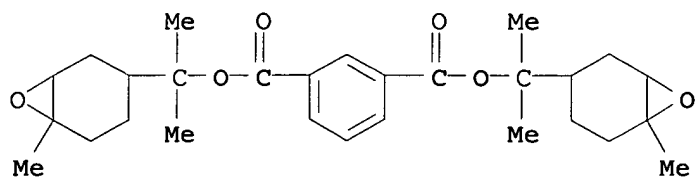
(preparation and characterization of)

RN 298702-52-0 HCAPLUS

CN 1,3-Benzenedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

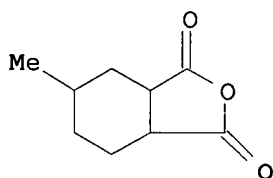
CM 1

CRN 298702-51-9
CMF C28 H38 O6



CM 2

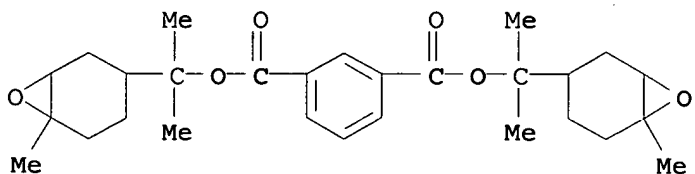
CRN 19438-60-9
CMF C9 H12 O3



RN 298702-53-1 HCAPLUS
CN 1,3-Benzenedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione and 7-oxabicyclo[4.1.0]heptane-3-carboxylate (9CI) (CA INDEX NAME)

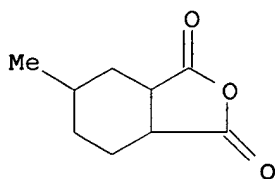
CM 1

CRN 298702-51-9
CMF C28 H38 O6



CM 2

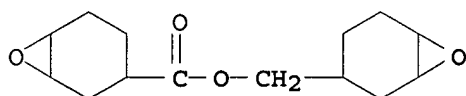
CRN 19438-60-9
CMF C9 H12 O3



CM 3

CRN 2386-87-0

CMF C14 H20 O4



CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 38

IT 298702-52-0P 298702-53-1P

(preparation and characterization of)

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L32 ANSWER 23 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2000:535780 HCAPLUS

DOCUMENT NUMBER: 133:223104

TITLE: Template-induced, stereoselective cyclizations
in the cyclopolymerization of
TADDOL-dimethacrylate

AUTHOR(S): Wulff, Gunter; Matussek, Anja; Hanf,
Christian; Gladow, Stefan; Lehmann, Christian;
Goddard, Richard

CORPORATE SOURCE: Institut fur Organische Chemie und
Makromolekulare Chemie Heinrich-Heine-
Universitat Dusseldorf, Dusseldorf, 40225,
Germany

SOURCE: Angewandte Chemie, International Edition
(2000), 39(13), 2275-2278
CODEN: ACIEF5; ISSN: 1433-7851

PUBLISHER: Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The stereoselectivity and the mechanism of the anionic
monocyclization of (R,R)-TADDOL dimethacrylate was studied using 4
different organolithium initiators (RLi, R = CHPh₂, CPh₃,
fluorenyl, N,N'-diphenylethylenediamine). Both diastereomers of
the TADDOL-bound MMA dimer compds. were yielded.

IT 171979-20-7DP, hydrolyzed 171979-20-7P
(preparation and structure of TADDOL-bound and free cyclic
polymethacrylate oligomers)

RN 171979-20-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, [[[4R,5R)-2,2-dimethyl-1,3-dioxolane-
4,5-diyl]bis(diphenylmethylene)] ester, homopolymer, isotactic

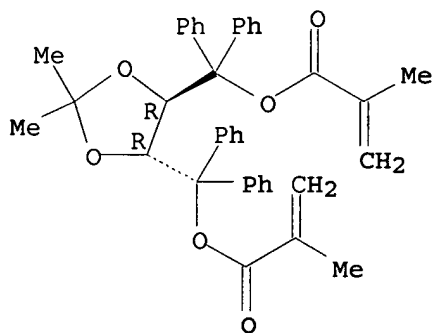
(9CI) (CA INDEX NAME)

CM 1

CRN 171979-19-4

CMF C39 H38 O6

Absolute stereochemistry. Rotation (-).



RN 171979-20-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, [[(4R,5R)-2,2-dimethyl-1,3-dioxolane-4,5-diyl]bis(diphenylmethylene)] ester, homopolymer, isotactic

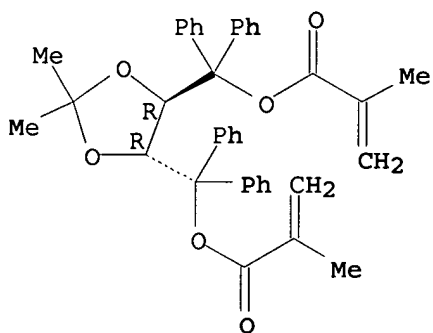
(9CI) (CA INDEX NAME)

CM 1

CRN 171979-19-4

CMF C39 H38 O6

Absolute stereochemistry. Rotation (-).



CC 35-4 (Chemistry of Synthetic High Polymers)

IT 25188-98-1P, Isotactic PMMA 171979-20-7DP, hydrolyzed

171979-20-7P 292163-36-1P 292163-37-2P 292163-40-7P

292163-41-8P 292163-42-9P 292163-43-0P 292163-44-1P

292163-45-2P

(preparation and structure of TADDOL-bound and free cyclic polymethacrylate oligomers)

REFERENCE COUNT:

5

THERE ARE 5 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L32 ANSWER 24 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2000:182104 HCAPLUS

DOCUMENT NUMBER: 132:294388

TITLE: Altering network architecture in cured thermosets: the decomposition mechanism and network breakdown of reworkable epoxies with tertiary ester links

AUTHOR(S): Chen, J. S.; Ober, C. K.; Poliks, M. D.

CORPORATE SOURCE: Department of Materials Science and Engineering, Cornell University, Ithaca, NY, 14853, USA

SOURCE: Polymeric Materials Science and Engineering (2000), 82, 357-358

CODEN: PMSEDG; ISSN: 0743-0515

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The breakdown mechanism of the cycloaliph. epoxy monomer and polymer network derived by the esterification of cyclohexenoic acid with α -terpineol with subsequent epoxidn. was studied. The resin cleaves in a manner that enabled reworkability in fully cured thermoset networks that contain it. The monomer breaks at its tertiary ester bond. Network decomposition due to disconnection of the monomer segments rendered the system soluble in common solvents.

IT 207505-78-0
(decomposition mechanism and network breakdown of reworkable epoxies with tertiary ester links)

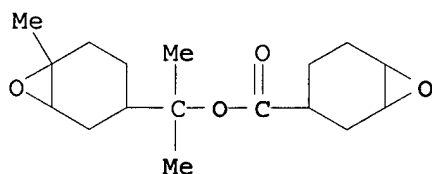
RN 207505-78-0 HCAPLUS

CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 195065-80-6

CMF C17 H26 O4



CC 37-4 (Plastics Manufacture and Processing)

IT 195065-80-6 207505-78-0

(decomposition mechanism and network breakdown of reworkable epoxies with tertiary ester links)

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L32 ANSWER 25 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:571842 HCAPLUS

DOCUMENT NUMBER: 131:200774

TITLE: Compounds with substituted cyclic hydrocarbon moieties linked by secondary or tertiary oxycarbonyl-containing moiety for reworkable

INVENTOR(S): cured thermosets
 PATENT ASSIGNEE(S): Ober, Christopher K.; Koerner, Hilmar
 SOURCE: Cornell Research Foundation, Inc., USA
 U.S., 21 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5948922	A	19990907	US 1997-802905	1997 0220
US 6197122	B1	20010306	US 1998-177363	1998 1023
US 5973033	A	19991026	US 1998-178557	1998 1026
PRIORITY APPLN. INFO.:			US 1997-802905	A3 1997 0220

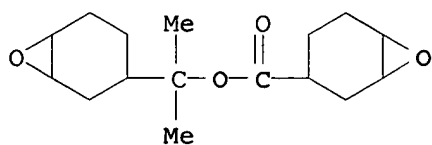
AB Title compds. containing two cyclic hydrocarbon moieties which are substituted to provide crosslinking functionality and linked to each other by secondary or tertiary oxycarbonyl-containing moiety are basis for compns. which are cured to provide cured thermosets for encapsulation and underfill for electronic components that are thermally decomposable to allow repair, replacement, recovery or recycling of operative electronic components from assemblies that are inoperative. Thus a curable composition comprising a compound prepared by reacting 3-cyclohexenecarboxylic acid chloride with (1-methyl-1-hydroxy)ethyl-3-cyclohexene, followed by epoxidizing the product with dimethyldioxirane 100, cis-1,2-cyclohexanecarboxylic anhydride 87, N,N-dimethylbenzylamine catalyst 1.5, and ethylene glycol initiator 1.5 parts was cured at 160° to give a cured thermoset, showing thermal decomposition temperature of ≤350°.

IT 240493-37-2P 240493-40-7P
 (preparation of compds. with substituted cyclic hydrocarbon moieties linked by secondary or tertiary oxycarbonyl-containing moiety for reworkable cured thermosets)

RN 240493-37-2 HCAPLUS
 CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 1-methyl-1-(7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with rel-(3aR,7aS)-hexahydro-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 195065-78-2
 CMF C16 H24 O4

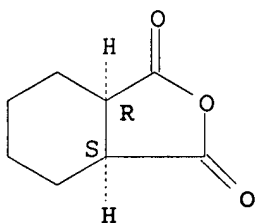


CM 2

CRN 13149-00-3

CMF C8 H10 O3

Relative stereochemistry.



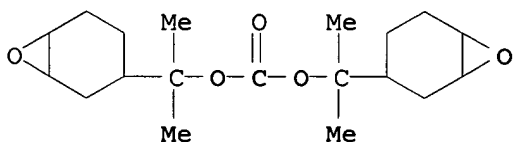
RN 240493-40-7 HCAPLUS

CN 7-Oxabicyclo[4.1.0]heptane-3-methanol, α,α -dimethyl-,
carbonate (2:1), polymer with rel-(3aR,7aS)-hexahydro-1,3-
isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 240493-33-8

CMF C19 H30 O5

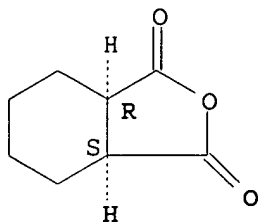


CM 2

CRN 13149-00-3

CMF C8 H10 O3

Relative stereochemistry.



IC ICM C07D303-00
 INCL 549547000
 CC 37-2 (Plastics Manufacture and Processing)
 Section cross-reference(s): 38, 76
 IT 240493-37-2P 240493-38-3P 240493-40-7P
 240493-41-8P 240493-42-9P 240493-43-0P 240493-44-1P
 240803-80-9P

(preparation of compds. with substituted cyclic hydrocarbon moieties
 linked by secondary or tertiary oxycarbonyl-containing moiety for
 reworkable cured thermosets)

REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L32 ANSWER 26 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:211320 HCAPLUS

DOCUMENT NUMBER: 130:352659

TITLE: Control of chirality and helicity in synthetic
 polymers

AUTHOR(S): Sogah, Dotsevi Y.; Zheng, Shiyong

CORPORATE SOURCE: Department of Chemistry and Chemical Biology,
 Cornell University, Ithaca, NY, 14853-1301,
 USA

SOURCE: Polymer Preprints (American Chemical Society,
 Division of Polymer Chemistry) (1999), 40(1),
 540-541

CODEN: ACPPAY; ISSN: 0032-3934

PUBLISHER: American Chemical Society, Division of Polymer
 Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Novel chiral helical polymers were prepared by isospecific free
 radical cyclopolymerization of bis(methacrylates) containing asym. templates.
 Polarimetric and CD measurements suggest that the polymers assume
 ordered and rigid conformations in solution with very high average molar
 rotation and do not mutarotate with either temperature or time. A
 strategy for probing secondary structures of optically active
 synthetic polymers that involves copolymerization of a chiral and achiral
 monomer and measurement of chiroptical properties of as a function
 of copolymer composition is described. Plot of optical rotation as a
 function of sequence length provides insight into the contribution
 of the optically active segment to the backbone conformation of
 the polymer. The min. segment length necessary for adoption of a
 stable helical conformation is determined from plots of normalized
 rotation vs. isotactic block length.

IT 224949-29-5P 224949-31-9P 224949-33-1P
 224949-34-2P

(preparation and characterization of)

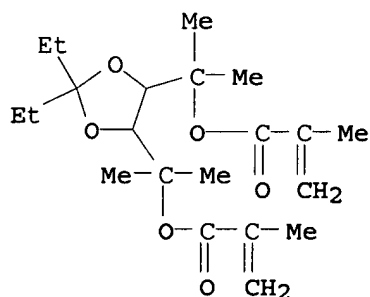
RN 224949-29-5 HCAPLUS

CN Hexitol, 1,6-dideoxy-3,4-O-(1-ethylpropylidene)-2,5-di-C-methyl-, bis(2-methyl-2-propenoate), polymer with 1-phenylethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 224949-28-4

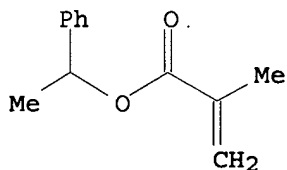
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CM 2

CRN 19321-42-7

CMF C12 H14 O2



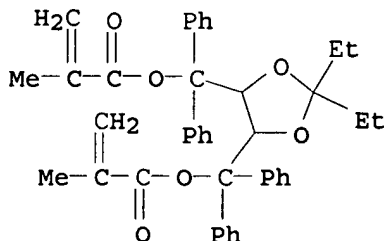
RN 224949-31-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, (2,2-diethyl-1,3-dioxolane-4,5-diyl)bis(diphenylmethylene) ester, polymer with 1-phenylethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 224949-30-8

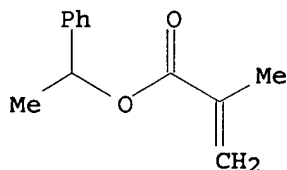
CMF C41 H42 O6



CM 2

CRN 19321-42-7

CMF C12 H14 O2



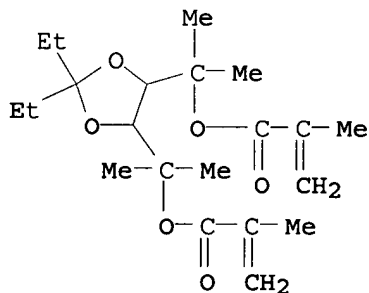
RN 224949-33-1 HCAPLUS

CN Hexitol, 1,6-dideoxy-3,4-O-(1-ethylpropylidene)-2,5-di-C-methyl-,
bis(2-methyl-2-propenoate), polymer with diphenylmethyl
2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 224949-28-4

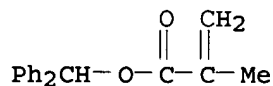
CMF C21 H34 06



CM 2

CRN 25574-72-5

CMF C17 H16 O2



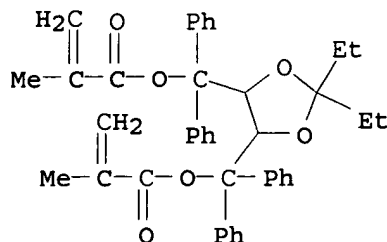
RN 224949-34-2 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, (2,2-diethyl-1,3-dioxolane-4,5-diyl)bis(diphenylmethylene) ester, polymer with diphenylmethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 224949-30-8

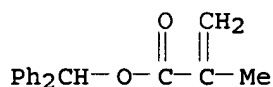
CMF C41 H42 O6



CM 2

CRN 25574-72-5

CMF C17 H16 O2



CC 35-4 (Chemistry of Synthetic High Polymers)

IT 224949-27-3P 224949-29-5P 224949-31-9P

224949-32-0P 224949-33-1P 224949-34-2P

(preparation and characterization of)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L32 ANSWER 27 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:7955 HCAPLUS

DOCUMENT NUMBER: 130:66889

TITLE: Halogenated acrylates and polymers derived therefrom

INVENTOR(S): Moore, George G. I.; McCormick, Fred B.;
Chattoraj, Mita; Cross, Elisa M.; Liu, Junkang
Jacob; Roberts, Ralph R.; Schulz, Jay F.

PATENT ASSIGNEE(S): Minnesota Mining and Manufacturing Company,
USA

SOURCE: PCT Int. Appl., 73 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9856749	A1	19981217	WO 1997-US17437	

1997
0929

W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU,
CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP,
KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG,
MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI,

SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ,
 BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES,
 FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,
 CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG

US 6005137	A	19991221	US 1997-872235	1997 0610
AU 9747392	A1	19981230	AU 1997-47392	1997 0929
EP 1009729	A1	20000621	EP 1997-909884	1997 0929
EP 1009729	B1	20050119		
R: DE, FR, GB, IT				
CN 1259932	A	20000712	CN 1997-182296	1997 0929
CN 1125030	B	20031022		
JP 2002514259	T2	20020514	JP 1999-502352	1997 0929
US 6313245	B1	20011106	US 1999-379156	1999 0823
US 6288266	B1	20010911	US 1999-382300	1999 0824
US 2001037028	A1	20011101	US 2001-846739	2001 0501
US 6362379	B2	20020326		
PRIORITY APPLN. INFO.:			US 1997-872235	A 1997 0610
			WO 1997-US17437	W 1997 0929
			US 1999-379156	A3 1999 0823

OTHER SOURCE(S): MARPAT 130:66889

AB Acrylates having a high degree of halogenation, as well as
 polymers that include one or more mer units derived from such
 acrylates provide materials having tailorable optical and phys.
 properties. The polymers find utility particularly in optical
 devices including optical waveguides and interconnecting devices.

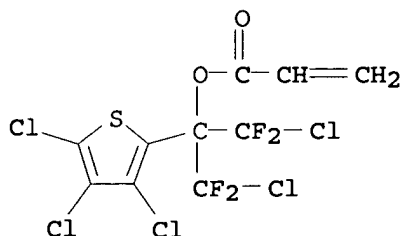
IT 217825-41-7P 217825-43-9P
 (halogenated acrylates and polymers derived therefrom)

RN 217825-41-7 HCAPLUS

CN 2-Propenoic acid, 2-chloro-1-(chlorodifluoromethyl)-2,2-difluoro-1-
 (3,4,5-trichloro-2-thienyl)ethyl ester, homopolymer (9CI) (CA
 INDEX NAME)

CM 1

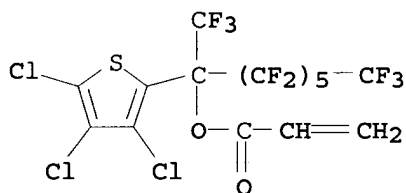
CRN 217825-40-6
CMF C10 H3 Cl5 F4 O2 S



RN 217825-43-9 HCAPLUS
CN 2-Propenoic acid, 2,2,3,3,4,4,5,5,6,6,7,7,7-tridecafluoro-1-(3,4,5-trichloro-2-thienyl)-1-(trifluoromethyl)heptyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 217825-42-8
CMF C15 H3 Cl3 F16 O2 S



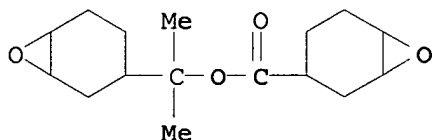
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ICS C07D213-64; C07D213-66; C07D213-68; C07D213-70; C08F020-22; C08F020-24; C07C041-22; C07C049-167; C07C049-175
CC 35-2 (Chemistry of Synthetic High Polymers)
IT 30943-42-1P 55130-25-1P 71195-86-3P 217825-09-7P
217825-10-0P 217825-11-1P 217825-12-2P 217825-14-4P
217825-15-5P 217825-17-7P 217825-19-9P 217825-21-3P
217825-23-5P 217825-24-6P 217825-26-8P 217825-28-0P
217825-30-4P 217825-32-6P 217825-34-8P 217825-35-9P
217825-37-1P 217825-39-3P **217825-41-7P**
217825-43-9P 217825-45-1P 217825-46-2P 217825-48-4P
217825-50-8P 217825-51-9P 217825-53-1P 217825-54-2P
217825-56-4P 217825-57-5P 217825-59-7P 217825-61-1P
217825-62-2P 217825-64-4P 217825-66-6P 217825-68-8P
217825-70-2P 217825-71-3P 217825-73-5P 217825-75-7P
217825-80-4P 217825-81-5P 217825-82-6P 217825-83-7P
217825-97-3P 217960-28-6P 217960-30-0P 217960-33-3P
217960-36-6P 217960-40-2P 217960-43-5P 217960-46-8P
217960-49-1P 217960-52-6P

(halogenated acrylates and polymers derived therefrom)

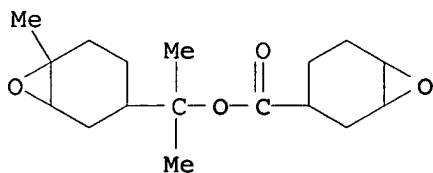
REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L32 ANSWER 28 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:398800 HCAPLUS
 DOCUMENT NUMBER: 129:5113
 TITLE: Reworkable Epoxies: Thermosets with Thermally Cleavable Groups for Controlled Network Breakdown
 AUTHOR(S): Yang, Shu; Chen, Jir-Shyr; Koerner, Hilmar; Breiner, Thomas; Ober, Christopher K.; Poliks, Mark D.
 CORPORATE SOURCE: Department of Materials Science and Engineering Bard Hall, Cornell University, Ithaca, NY, 14853-1501, USA
 SOURCE: Chemistry of Materials (1998), 10(6), 1475-1482
 CODEN: CMATEX; ISSN: 0897-4756
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB A series of epoxies with primary, secondary, and tertiary ester linkages were synthesized. Those networks which have tertiary esters break down at much lower temps. (~220 °C) than those with primary or secondary esters. The thermosets cured from these epoxides have the advantage of being thermally decomposable at relatively modest temps. without introduction of solvent or catalyst into the system. The concentration of weak linkages in the network greatly affects their decomposition behavior. The cured thermosets with tertiary esters retain the advantage of the mech. behavior of conventional primary ester thermosets at room temperature while having reduced mech. properties at elevated temps., thereby offering the possibility of easier thermoset removal.
 IT 207505-77-9P 207505-78-0P 207505-79-1P
 (preparation of reworkable epoxy thermosets with thermally cleavable ester groups for controlled network breakdown)
 RN 207505-77-9 HCAPLUS
 CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 1-methyl-1-(7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, homopolymer (9CI) (CA INDEX NAME)
 CM 1
 CRN 195065-78-2
 CMF C16 H24 O4



RN 207505-78-0 HCAPLUS
 CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, homopolymer (9CI) (CA INDEX NAME)
 CM 1
 CRN 195065-80-6
 CMF C17 H26 O4



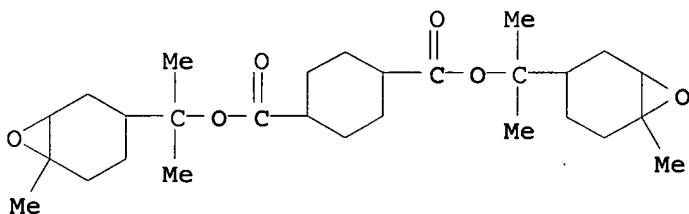
RN 207505-79-1 HCAPLUS

CN 1,4-Cyclohexanedicarboxylic acid, bis[1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl] ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 207505-75-7

CMF C28 H44 O6



CC 37-3 (Plastics Manufacture and Processing)

IT 195065-76-0P 195065-78-2P 195065-80-6P 207505-75-7P

207505-76-8P 207505-77-9P 207505-78-0P

207505-79-1P

(preparation of reworkable epoxy thermosets with thermally cleavable ester groups for controlled network breakdown)

REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L32 ANSWER 29 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1997:730905 HCAPLUS

DOCUMENT NUMBER: 127:359171

TITLE: Highly isotactic optically active methacrylate polymers by free radical cyclopolymerization

AUTHOR(S): Zheng, Shiyang; Sogah, Dotsevi Y.

CORPORATE SOURCE: Dep. Chem., Baker Lab., Cornell Univ., Ithaca, NY, 14853, USA

SOURCE: Tetrahedron (1997), 53(45), 15469-15485

CODEN: TETRAB; ISSN: 0040-4020

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Isospecific free radical cyclopolymerization of tartrate-based monomers gives polymers with high optical rotations. The monomers were prepared from the corresponding diols by reaction with methacryloyl chloride in presence of N-methylpyrrolidone or N-butyllithium. Cyclization polymerization was performed in toluene at 60° with AIBN as initiator. The triad tacticity distribution and isotacticity of the polymers were determined by ¹H NMR methods. CD and

polarimetric measurements suggest the polymers are rigid and ordered; the polymers show higher optical rotation than that of corresponding monomers. The thermal decomposition temperature of the products is 296-427°. The high resistance to solvolysis suggests potential applications of the polymers in chiral chromatog.

IT 171979-20-7P, (-)-trans-4,5-Bis(methacryloyloxy)diphenylmethylethyl-2,2-dimethyl-1,3-dioxacyclopentane homopolymer
 198691-48-4P, (-)-trans-4,5-Bis(methacryloyloxy)dimethylmethylethyl-2,2-diethyl-1,3-dioxacyclopentane homopolymer
 198691-49-5P, (-)-trans-4,5-Bis(methacryloyloxy)diphenylmethylethyl-2,2-diethyl-1,3-dioxacyclopentane homopolymer
 (highly isotactic optically active poly(tartrate methacrylate)s prepared by free radical cyclopolymer.)

RN 171979-20-7 HCAPLUS

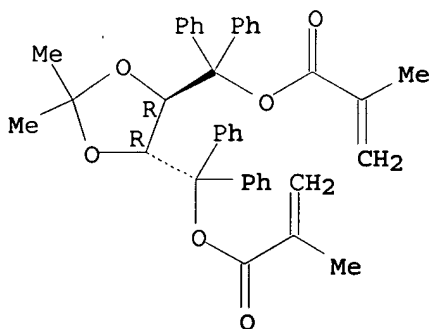
CN 2-Propenoic acid, 2-methyl-, [[(4R,5R)-2,2-dimethyl-1,3-dioxolane-4,5-diyl]bis(diphenylmethylene)] ester, homopolymer, isotactic (9CI) (CA INDEX NAME)

CM 1

CRN 171979-19-4

CMF C39 H38 O6

Absolute stereochemistry. Rotation (-).



RN 198691-48-4 HCAPLUS

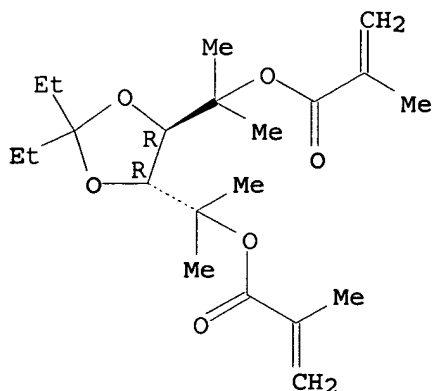
CN L-threo-Hexitol, 1,6-dideoxy-3,4-O-(1-ethylpropylidene)-2,5-di-C-methyl-, bis(2-methyl-2-propenoate), homopolymer, isotactic (9CI) (CA INDEX NAME)

CM 1

CRN 198691-43-9

CMF C21 H34 O6

Absolute stereochemistry. Rotation (-).



RN 198691-49-5 HCAPLUS

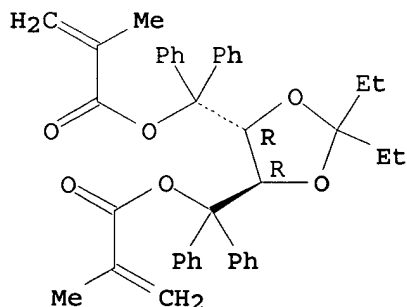
CN 2-Propenoic acid, 2-methyl-, (2,2-diethyl-1,3-dioxolane-4,5-diyl)bis(diphenylmethylene) ester, (2R-trans)-, homopolymer, isotactic (9CI) (CA INDEX NAME)

CM 1

CRN 198691-44-0

CMF C41 H42 O6

Absolute stereochemistry. Rotation (-).



CC 35-4 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 36

IT 171979-20-7P, (-)-trans-4,5-Bis(methacryloyloxy)diphenylmethylethyl-2,2-dimethyl-1,3-dioxacyclopentane homopolymer
 198691-48-4P, (-)-trans-4,5-Bis(methacryloyloxy)dimethylmethylethyl-2,2-diethyl-1,3-dioxacyclopentane homopolymer
 198691-49-5P, (-)-trans-4,5-Bis(methacryloyloxy)diphenylmethylethyl-2,2-diethyl-1,3-dioxacyclopentane homopolymer 198691-51-9P, (-)-trans-2,3-Bis(methacryloyloxy)dimethylmethylethyl-1,4-dioxaspiro[4,4]nonane homopolymer
 (highly isotactic optically active poly(tartrate methacrylate)s prepared by free radical cyclopolymer.)

REFERENCE COUNT: 77 THERE ARE 77 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L32 ANSWER 30 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1997:579415 HCAPLUS

DOCUMENT NUMBER: 127:221339
 TITLE: Design and characterization of a new reworkable epoxy using solvent free, thermally induced network breakdown
 AUTHOR(S): Yang, Shu; Chen, Jir-Shyr; Korner, Hilmar; Breiner, Thomas; Ober, Christopher K.; Poliks, Mark D.
 CORPORATE SOURCE: Department of Materials Science and Engineering, Cornell University, Ithaca, NY, 14853-1501, USA
 SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (1997), 38(2), 440-441
 CODEN: ACPPAY; ISSN: 0032-3934
 PUBLISHER: American Chemical Society, Division of Polymer Chemistry
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Epoxy resins have been widely used in many applications, but the very robustness of the epoxy network after curing may be a marked disadvantage in some cases. To achieve the feature of rework, or controlled network breakdown, a series of new cycloaliph. epoxies were synthesized which have either secondary or tertiary ester bonds between crosslink sites. These ester bonds can be cleaved if heated to a specific temperature, chosen to be above the processing and cure temperature. Thermal anal. data shows that the anhydride-cured epoxies with tertiary ester bonds can decompose at .apprx.220°, while those with primary ester links decompose at .apprx.340° at a heating rate of 10°/min. Dynamic mech. anal. revealed that these new thermosets retain a modulus comparable to that of the crosslinked com. epoxy ERL 4221.

IT 195065-79-3P 195065-81-7P
 (design and characterization of reworkable epoxy resins using solvent-free thermally induced network breakdown)

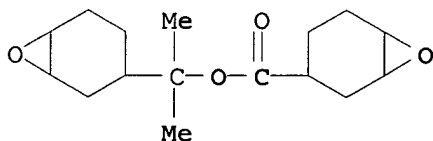
RN 195065-79-3 HCAPLUS

CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 1-methyl-1-(7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

CM 1

CRN 195065-78-2

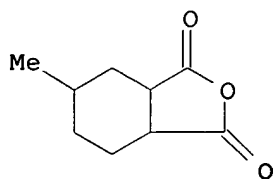
CMF C16 H24 O4



CM 2

CRN 19438-60-9

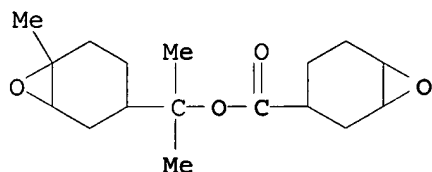
CMF C9 H12 O3



RN 195065-81-7 HCAPLUS
 CN 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 1-methyl-1-(6-methyl-7-oxabicyclo[4.1.0]hept-3-yl)ethyl ester, polymer with hexahydro-5-methyl-1,3-isobenzofurandione (9CI) (CA INDEX NAME)

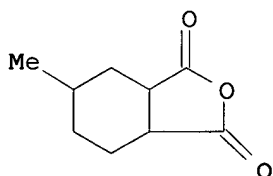
CM 1

CRN 195065-80-6
 CMF C17 H26 O4



CM 2

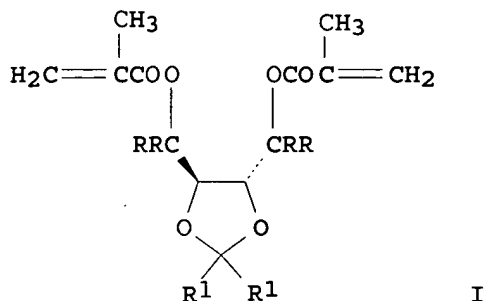
CRN 19438-60-9
 CMF C9 H12 O3



CC 37-3 (Plastics Manufacture and Processing)
 IT 195065-77-1P 195065-79-3P 195065-81-7P
 (design and characterization of reworkable epoxy resins using solvent-free thermally induced network breakdown)

L32 ANSWER 31 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1997:224129 HCAPLUS
 DOCUMENT NUMBER: 126:238730
 TITLE: Stereocontrol of vinyl polymers via cyclopolymerization
 AUTHOR(S): Zheng, Shiyong; Sogah, Dotsevi Y.
 CORPORATE SOURCE: Dep. Chem., Cornell Univ., Ithaca, NY, 14853, USA
 SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (1997), 38(1), 60-61
 CODEN: ACPPAY; ISSN: 0032-3934

PUBLISHER: American Chemical Society, Division of Polymer Chemistry
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 GI



AB Complete cyclopolymn. of monomers I (R = H, Me, Ph; R' = Me, Et, -(CH₂)₄-) by group transfer polymerization (GTP) and free radical polymerization

The isotacticity content of the polymers increased with the bulkiness of the monomer. The polymers with high isotacticity can assume helical conformation. The isotacticity increased with decreasing temperature under GTP conditions and was enthalpically controlled. Tacticity and optical rotation data are present. GTP and free radical polymerization can lead to enhanced macrocyclization and high meso placements to give stereoregular polymers by judicious design of monomers.

IT 171979-20-7P 188527-38-0P 188527-40-4P
 188527-46-0P

(isotacticity content and chiroptical properties of vinyl polymers in relation to cyclopolymn. and monomer)

RN 171979-20-7 HCAPLUS

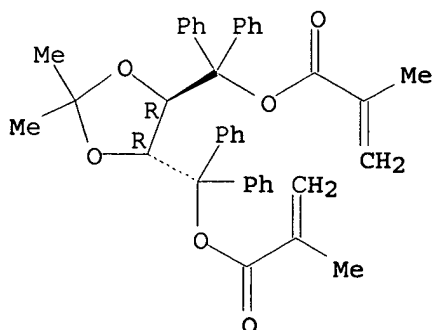
CN 2-Propenoic acid, 2-methyl-, [[[4R,5R)-2,2-dimethyl-1,3-dioxolane-4,5-diyl]bis(diphenylmethylene)] ester, homopolymer, isotactic (9CI) (CA INDEX NAME)

CM 1

CRN 171979-19-4

CMF C39 H38 O6

Absolute stereochemistry. Rotation (-).



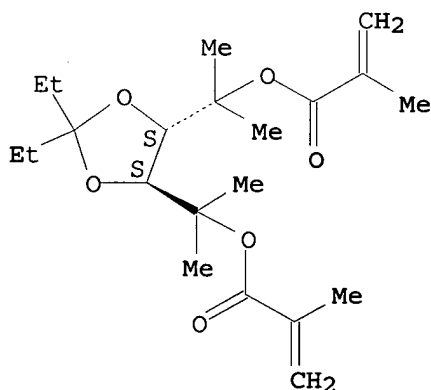
RN 188527-38-0 HCAPLUS
 CN threo-Hexitol, 1,6-dideoxy-3,4-O-(1-ethylpropylidene)-2,5-di-C-methyl-, bis(2-methyl-2-propenoate), homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 188527-37-9

CMF C21 H34 O6

Relative stereochemistry.



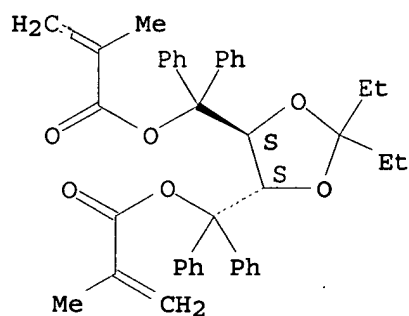
RN 188527-40-4 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, (2,2-diethyl-1,3-dioxolane-4,5-diyl)bis(diphenylmethylene) ester, trans-, homopolymer, isotactic (9CI) (CA INDEX NAME)

CM 1

CRN 188527-39-1

CMF C41 H42 O6

Relative stereochemistry.



RN 188527-46-0 HCAPLUS

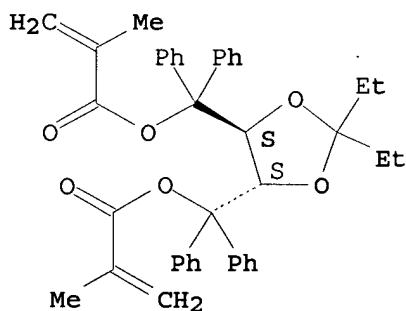
CN 2-Propenoic acid, 2-methyl-, (2,2-diethyl-1,3-dioxolane-4,5-diyl)bis(diphenylmethylene) ester, trans-, polymer with 1-phenylethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 188527-39-1

CMF C41 H42 O6

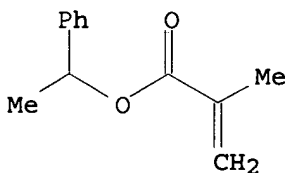
Relative stereochemistry.



CM 2

CRN 19321-42-7

CMF C12 H14 O2



CC 35-4 (Chemistry of Synthetic High Polymers)

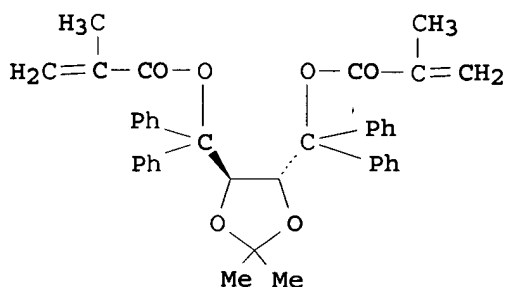
Section cross-reference(s): 36

IT 171979-20-7P 188527-36-8P 188527-38-0P
 188527-40-4P 188527-42-6P 188527-44-8P 188527-45-9P
 188527-46-0P

(isotacticity content and chiroptical properties of vinyl

polymers in relation to cyclopolymer. and monomer)

L32 ANSWER 32 OF 32 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 1995:926791 HCAPLUS
 DOCUMENT NUMBER: 124:30476
 TITLE: Cyclopolymerization of Optically Active
 (-)-trans-4,5-Bis((methacryloyloxy)diphenyl-
 methyl)-2,2-dimethyl-1,3-dioxacyclopentane
 through Radical and Anionic Mechanisms Gives
 Highly Isotactic Polymers
 AUTHOR(S): Nakano, Tamaki; Okamoto, Yoshio; Sogah,
 Dotsevi Y.; Zheng, Shiyang
 CORPORATE SOURCE: School of Engineering, Nagoya University,
 Nagoya, 464-01, Japan
 SOURCE: Macromolecules (1995), 28(25), 8705-6
 CODEN: MAMOBX; ISSN: 0024-9297
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 GI



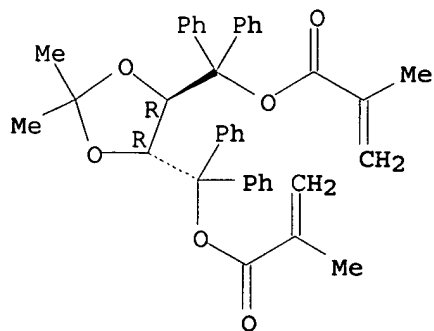
- AB The title compound I ($[\alpha]_{25365} -430^\circ$, $[\alpha]_{25D} 134^\circ$) was synthesized from (-)-trans-4,5-bis(hydroxydiphenylmethyl)-2,2-dimethyl-1,3-dioxacyclopentane and methacryloyl chloride, and polymerized through free radical and anionic mechanisms. The polymers were soluble and showed no clear pendent vinyl signals in $^1\text{H-NMR}$ anal., indicating that polymerization took place exclusively via cyclization. The polymer obtained by radical polymerization in toluene at 60° had a triad tacticity distribution of mm/mr/rr = 84/10/6 and was levorotatory ($[\alpha]_{25365} 715^\circ$, $[\alpha]_{25D} 194^\circ$); the one obtained by anionic polymerization in THF at 78° using 9-fluorenyllithium was almost perfectly isotactic (mm > 99%) and showed higher levorotation ($[\alpha]_{25365} 841^\circ$, $[\alpha]_{25D} 222^\circ$). The polymers may have a rigid helical conformation as assumed on the basis of the chiroptical properties and structural analogy of the polymers with poly(triphenylmethyl methacrylate) which is known to have a helical structure.
- IT 171979-20-7P
 (cyclopolymer. of optically active bis((methacryloyloxy)diphenylmethyl)dimethyldioxacyclopentane via radical and anionic mechanisms for high isotacticity)
- RN 171979-20-7 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, [(4R,5R)-2,2-dimethyl-1,3-dioxolane-4,5-diyl]bis(diphenylmethylene)] ester, homopolymer, isotactic (9CI) (CA INDEX NAME)

CM 1

CRN 171979-19-4

CMF C39 H38 O6

Absolute stereochemistry. Rotation (-).



CC 35-3 (Chemistry of Synthetic High Polymers)

IT 171979-20-7P

(cyclopolymer of optically active bis((methacryloyloxy)diphenyl methyl)dimethyldioxacyclopentane via radical and anionic mechanisms for high isotacticity)

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Sin J. Lee Examiner #: 76060 Date: 12/15/05
 Art Unit: 1752 Phone Number 301-21333 Serial Number: 1017651919
 Mail Box and Bldg/Room Location: 9060 Results Format Preferred (circle): PAPER DISK E-MAIL
 (Rem.)

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Plz. See B.T.B.

Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Plz. Search for a polymer
 having a repeat unit, which
 contains a substituent gp. of the formula (2)
 shown in Cl. #2.

SCIENTIFIC REFERENCE BR
 Sci & Tech Inf. Ctr.

DEC 19 2005

Pat. & T.M. Office

STAFF USE ONLY

	Type of Search	Vendors and cost where applicable
Searcher: <u>idhe</u>	NA Sequence (#) _____	STN <u>830014</u>
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) <u>1</u>	Questel/Orbit _____
Date Searcher Picked Up: <u>12/22/05</u>	Bibliographic _____	Dr.Link _____
Date Completed: <u>12/22/05</u>	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: <u>60-90</u>	Fulltext _____	Sequence Systems _____
Clerical Prep Time: <u>30</u>	Patent Family _____	WWW/Internet _____
Online Time: <u>50</u>	Other _____	Other (specify) _____

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1430
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www.uspto.gov



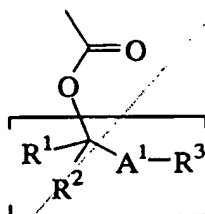
Bib Data Sheet

CONFIRMATION NO. 4118

SERIAL NUMBER 10/765,919	FILING DATE 01/29/2004 RULE	CLASS 430	GROUP ART UNIT 1752	ATTORNEY DOCKET NO. 0171-1058P	
APPLICANTS Jun Hatakeyama, Niigata-ken, JAPAN; Takanobu Takeda, Niigata-ken, JAPAN; Osamu Watanabe, Niigata-ken, JAPAN; ** CONTINUING DATA ***** None SJL ** FOREIGN APPLICATIONS ***** JAPAN 2003-021416 01/30/2003) SJL JAPAN 2003-194033 07/09/2003) IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 08/18/2005					
Foreign Priority claimed <input checked="" type="checkbox"/> yes <input type="checkbox"/> no 35 USC 119 (a-d) conditions <input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> Met after met Verified and <u> </u> SJL Acknowledged <u> </u> SJL Examiner's Signature Initials		STATE OR COUNTRY JAPAN	SHEETS DRAWING 2	TOTAL CLAIMS 13	INDEPENDENT CLAIMS 4
ADDRESS 02292 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH , VA 22040-0747					
TITLE Polymer, resist composition and patterning process					
FILING FEE RECEIVED	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time)		

CLAIMS:

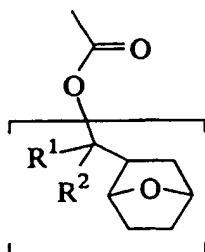
1. A polymer comprising recurring units containing silicon and recurring units having a substituent group of the general formula (1):



(1)

wherein A¹ is a divalent group selected from furandiyl, tetrahydrofurandiyl and oxanorbornandiyl, R¹ and R² are independently selected from straight, branched or cyclic monovalent hydrocarbon groups of 1 to 10 carbon atoms, or R¹ and R² taken together may form an aliphatic hydrocarbon ring with the carbon atom to which they are attached, and R³ is hydrogen or a straight, branched or cyclic monovalent hydrocarbon group of 1 to 10 carbon atoms which may contain a hetero atom.

2. A polymer comprising recurring units containing silicon and recurring units having a substituent group of the general formula (2):

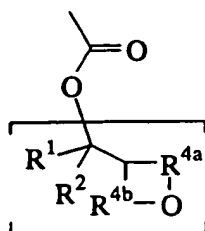


(2)

wherein R¹ and R² are independently selected from straight, branched or cyclic monovalent hydrocarbon groups of 1 to 10

carbon atoms, or R¹ and R² taken together may form an aliphatic hydrocarbon ring with the carbon atom to which they are attached.

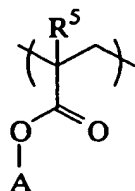
- 5 3. A polymer comprising recurring units containing silicon and recurring units having a substituent group of the general formula (3):



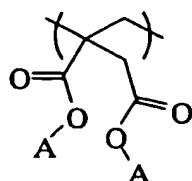
(3)

- 10 wherein R¹ and R² are independently selected from straight, branched or cyclic monovalent hydrocarbon groups of 1 to 10 carbon atoms, or R¹ and R² taken together may form an aliphatic hydrocarbon ring with the carbon atom to which they are attached, and R^{4a} and R^{4b} each are a single bond or an alkylene or alkenylene group of 1 to 4 carbon atoms, the
15 total number of carbon atoms in R^{4a} and R^{4b} being from 3 to 6.

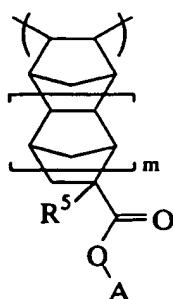
4. A polymer comprising recurring units containing silicon and recurring units of at least one type selected from the general formulae (4) to (8):



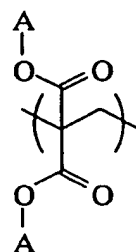
(4)



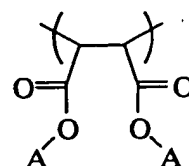
(5)



(6)



(7)



(8)

=> fil reg

FILE 'REGISTRY' ENTERED AT 11:00:19 ON 22 DEC 2005

=> d his

FILE 'HCAPLUS' ENTERED AT 09:06:02 ON 22 DEC 2005

L1 1 S US20050260521/PN
SEL RN

FILE 'REGISTRY' ENTERED AT 09:06:31 ON 22 DEC 2005

L2 12 S E1-E12

FILE 'LREGISTRY' ENTERED AT 09:40:05 ON 22 DEC 2005

L3 STR
L4 STR

FILE 'REGISTRY' ENTERED AT 09:43:41 ON 22 DEC 2005

L5 SCR 2043
L6 0 S L3 AND L4 AND L5
L7 0 S L3 AND L4
L8 SCR 1146 OR 1135
L9 2 S L3 AND L8
L10 STR L3
L11 0 S L10 AND L4
L12 2 S L10 AND L8
L13 2 S L10 AND L5 AND L8
L14 110 S L10 AND L5 AND L8 FUL
SAV L14 LEE919/A
L15 7 S L14 AND L2
L16 30 S L14 AND 103.61.1/RID
L17 13 S L14 AND 16.138.6/RID
L18 40 S L14 AND 16.138/RID
L19 STR L10
L20 1 S L19 AND L5 AND L8
L21 157 S L19 AND L5 AND L8 FUL
SAV L21 LEE919A/A
L22 167 S L14 OR L21
L23 33 S L22 AND 103.61/RID
L24 45 S L22 AND 16.138/RID

FILE 'HCAPLUS' ENTERED AT 10:32:56 ON 22 DEC 2005

L25 131 S L22
L26 11 S L23
L27 33 S L24
L28 34 S L26 OR L27
L29 97 S L25 NOT L28

FILE 'REGISTRY' ENTERED AT 10:35:45 ON 22 DEC 2005

L30 110 S L22 NOT 1-20/N

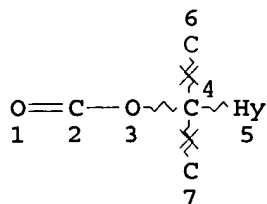
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L31 65 S L30
L32 32 S L31 NOT L28
L33 34 S L31 AND PHOTOG?/SC
L34 1 S L33 NOT L28

=> d que 126

L5 SCR 2043

L8 SCR 1146 OR 1135
L10 STR



NODE ATTRIBUTES:

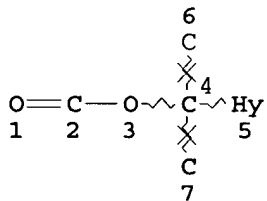
NSPEC IS RC AT 4
NSPEC IS RC AT 6
NSPEC IS RC AT 7
DEFAULT MLEVEL IS ATOM
GGCAT IS SAT AT 5
DEFAULT ECLEVEL IS LIMITED
ECOUNT IS X6 C AT 5

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE

L14 110 SEA FILE=REGISTRY SSS FUL L10 AND L5 AND L8
L19 STR



NODE ATTRIBUTES:

NSPEC IS RC AT 4
NSPEC IS RC AT 6
NSPEC IS RC AT 7
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED
ECOUNT IS X6 C X1 O AT 5

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE

L21 157 SEA FILE=REGISTRY SSS FUL L19 AND L5 AND L8
L22 167 SEA FILE=REGISTRY ABB=ON PLU=ON L14 OR L21
L23 33 SEA FILE=REGISTRY ABB=ON PLU=ON L22 AND 103.61/RID
L26 11 SEA FILE=HCAPLUS ABB=ON PLU=ON L23

=> fil hcap

FILE 'HCAPLUS' ENTERED AT 11:00:37 ON 22 DEC 2005

=> d l26 1-11 ibib abs hitstr hitind

L26 ANSWER 1 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:822667 HCAPLUS

DOCUMENT NUMBER: 143:219454

TITLE: Chemically amplified photoresists with high sensitivity, resolution, and less scums, silsesquioxane compositions therefor, and method for forming precise patterns therewith

INVENTOR(S): Hatakeyama, Jun

PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 102 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2005221714	A2	20050818	JP 2004-28994	2004 0205
PRIORITY APPLN. INFO.:			JP 2004-28994	2004 0205

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT
*

AB The compns. contain (A) organopolysiloxanes prepared by hydrolytic condensation of silane monomers R_1SiX_3 (R_1 = organic group having acid-decomposable group; X = halo, OH, C1-10 alkoxy or acyl) and optionally other silane monomers R_0SiX_3 (R_0 = organic group for tight adhesion; X = same as above) and (B) polymers having repeating units $[R_2C(CO_2R_5)CH_2]$ [R_2 = H, Me, F, CF_3 , CN, $CH_2CO_2R_3$, CH_2OR_4 ; R_3 = C1-4 linear or branched alkyl; R_4 = H, C1-4 linear or branched alkyl or acyl; R_5 = $R_6R_7CCH_2SiR_8R_9R_{10}$, $R_{11}C(CH_2SiR_{12}R_{13}R_{14})_2$, $C(CH_2SiR_{15}R_{16}R_{17})_3$, Q1, Q2; R_6 , R_7 , R_{11} = H, C1-10 linear, branched, or cyclic alkyl; R_8 - R_{10} , R_{12} - R_{17} = C1-10 linear, branched, or cyclic alkyl, C6-10 aryl, trialkylsilyl, Si-containing group bonded with Si in the formula by siloxane or silalkylene linkage; R_{18} - R_{30} = C1-20 linear, branched, or cyclic alkyl; R_{18} , R_{19} , R_{22} , R_{23} , R_{26} , R_{27} , R_{31} , R_{32} , R_{35} , R_{36} , R_{39} - R_{41} = H, C1-20 linear, branched, or cyclic alkyl; R_{20} , R_{21} , R_{24} , R_{25} , R_{33} , R_{34} , R_{37} , R_{38} = H, C1-20 linear, branched, or cyclic alkyl, fluorinated C1-20 alkyl, C6-20 aryl; p , q , r , s = 0-10; $1 \leq p + q + s \leq 20$]. Also claimed are compns. containing A and (C) copolymers of silyl-branched vinyl repeating units and other repeating units having groups whose alkaline solubility can be increased by acids (both Markush given). Alternatively, the compns. contain (R_1SiO_x) (R_1 = same as above; x = 1.0-1.5) instead of A. Also claimed are chemical amplified photoresists containing the above compns., acid generators, organic solvents, and optionally dissoln. inhibitors. Basic compns. may be contained in the

photoresists. In the process, the photoresists are applied on substrates (e.g., semiconductor wafers equipped with photoresist underlayers), heat treated, exposed to high-energy rays or electron beams via photomasks, and developed (after further heat treatment) to give patterns. After the patterns are formed, layers under them may be etched with O plasma or with Br- or Cl-containing halogen gases.

IT 802917-23-3P 862379-21-3P

(silsesquioxane-based chemical amplified photoresists with high sensitivity, resolution, and less scums for forming precise patterns)

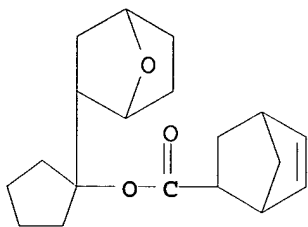
RN 802917-23-3 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester, polymer with 2,5-furandione and heptacyclopentyl[(ethenyldimethylsilyl)oxy]pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane (9CI) (CA INDEX NAME)

CM 1

CRN 676456-74-9

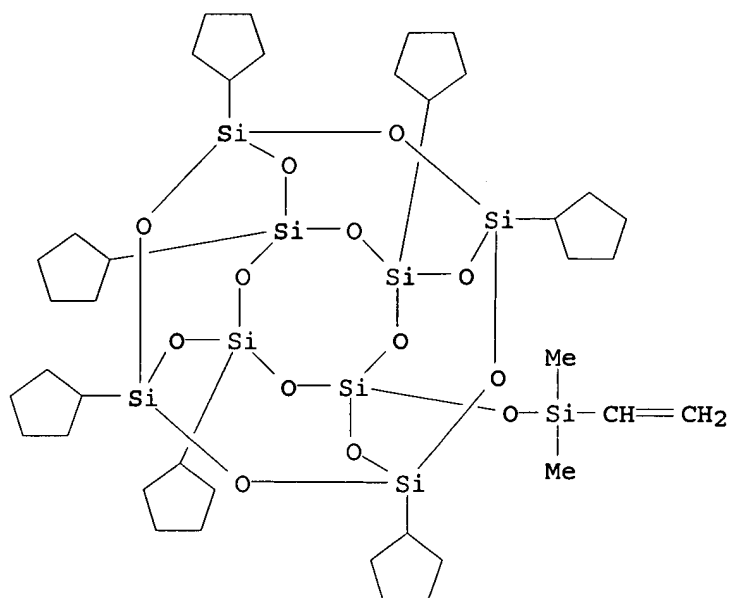
CMF C19 H26 O3



CM 2

CRN 312693-40-6

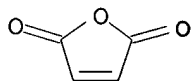
CMF C39 H72 O13 Si9



CM 3

CRN 108-31-6

CMF C4 H2 O3



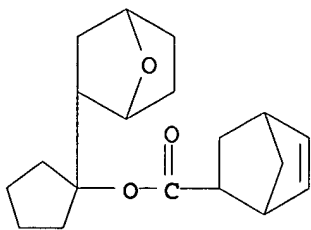
RN 862379-21-3 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester, polymer with ethenylheptamethylcyclotetrasiloxane and 2,5-furandione (9CI) (CA INDEX NAME)

CM 1

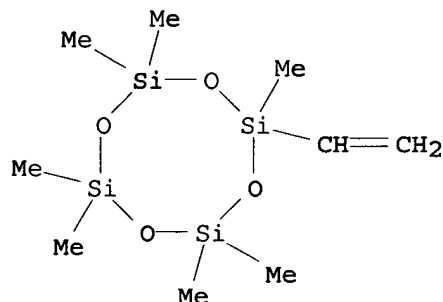
CRN 676456-74-9

CMF C19 H26 O3



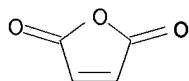
CM 2

CRN 3763-39-1
CMF C9 H24 O4 Si4



CM 3

CRN 108-31-6
CMF C4 H2 O3



IC ICM G03F007-075
ICS C08F030-08; G03F007-039; H01L021-027; C08G077-14
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76
IT 630417-20-8P 800397-92-6P 802917-23-3P 802986-14-7P
819837-18-8P 862379-20-2P 862379-21-3P 862383-75-3P
862383-77-5P
(silsesquioxane-based chemical amplified photoresists with high sensitivity, resolution, and less scums for forming precise patterns)

L26 ANSWER 2 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:445341 HCAPLUS

DOCUMENT NUMBER: 142:490394

TITLE: Acrylic polymers for chemically amplified positive photoresists, and method for pattern formation using them

INVENTOR(S): Hatakeyama, Jun; Harada, Yuji; Kawai, Yoshio

PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 56 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2005133066

A2

20050526

JP 2004-215907

2004

0723

PRIORITY APPLN. INFO.:

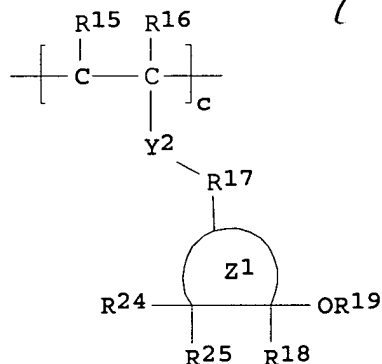
JP 2003-350143

A

2003

1008

GI



I

AB The polymers have repeating units of (A) [CHR2CR1[CO2CR3R4(R5R6)]]a and (B) [CHR8CR9[Y1R10R23R11CR12R13(OR14)]]b and/or I [R1 = H, Me, CH2CO2R7; R2 = H, Me, CO2R7; R3, R4 = C1-10 hydrocarbonyl, R3 and R4 may link together to form an aliphatic hydrocarbon ring with connecting C; R5 = furandiyl, tetrahydrofurandiyl, and oxanorbornanediyl; R6 = H, C1-10 hydrocarbonyl; R7 = H, C1-15 alkyl; R9, R16 = H, Me, CH2CO2R7; R8, R15 = H, Me, CO2R7; R10, R11, R17 = single bond, C1-4 alkylene; R12, R13 = trifluoromethyl, Me, R12 = R13 ≠ Me; R18 = F, trifluoromethyl; R14, R19 = H, acid-labile group; R23 = (O-, S-containing bridged) C4-20 cyclic alkylene; R24, R25 = H, F; Z1 = (O-, S-containing) C4-12 bridged cyclic hydrocarbon group; Y1, Y2 = O, CO2; a = 0.1-0.8; b, c = 0-0.8; (b + c) = 0.05-0.8]. The photoresists show high sensitivity and resolution, and low line edge roughness.

IT 851866-57-4P 851866-58-5P 851866-60-9P
851866-61-0P 851866-62-1P 851866-63-2P

(acrylic polymers having specific acid-labile groups for chemical amplified pos. photoresists)

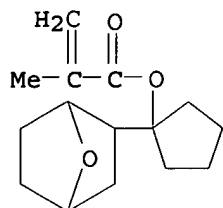
RN 851866-57-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl ester, polymer with 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate and 5-[3,3,3-trifluoro-2-hydroxy-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

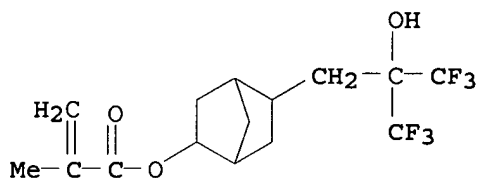
CMF C15 H22 O3



CM 2

CRN 617711-94-1

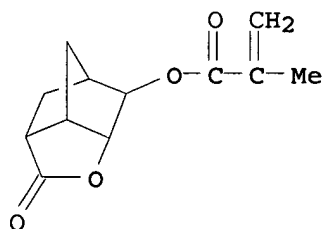
CMF C15 H18 F6 O3



CM 3

CRN 254900-07-7

CMF C12 H14 O4



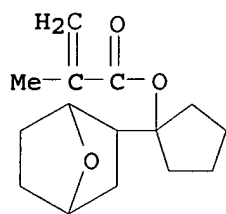
RN 851866-58-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-hydroxytricyclo[3.3.1.1.3,7]dec-1-yl ester, polymer with 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate and 5-[3,3,3-trifluoro-2-hydroxy-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

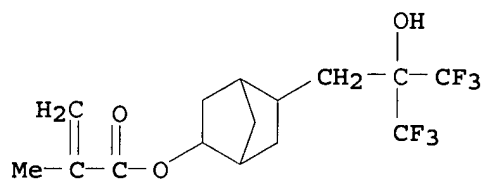
CMF C15 H22 O3



CM 2

CRN 617711-94-1

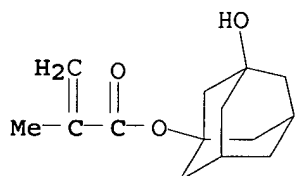
CMF C15 H18 F6 O3



CM 3

CRN 115372-36-6

CMF C14 H20 O3



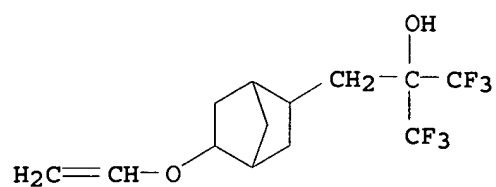
RN 851866-60-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl ester, polymer with 5-(ethenylloxy)- α,α -bis(trifluoromethyl)bicyclo[2.2.1]heptane-2-ethanol and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 849811-87-6

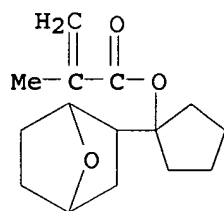
CMF C13 H16 F6 O2



CM 2

CRN 676456-72-7

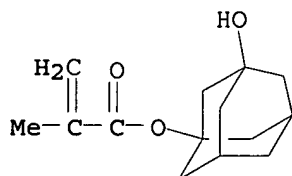
CMF C15 H22 O3



CM 3

CRN 115372-36-6

CMF C14 H20 O3



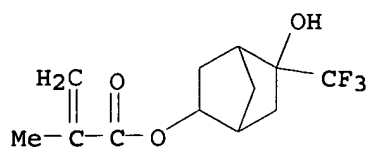
RN 851866-61-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-hydroxytricyclo[3.3.1.13,7]dec-1-yl ester, polymer with 5-hydroxy-5-(trifluoromethyl)bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 849803-66-3

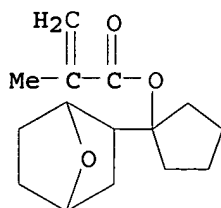
CMF C12 H15 F3 O3



CM 2

CRN 676456-72-7

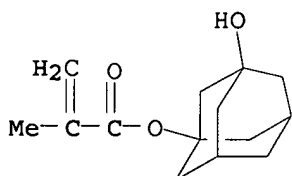
CMF C15 H22 O3



CM 3

CRN 115372-36-6

CMF C14 H20 O3



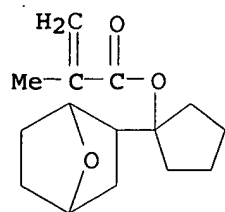
RN 851866-62-1 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-ethyldecahydro-1,4:5,8-dimethanonaphthalen-2-yl ester, polymer with 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate and 5-[3,3,3-trifluoro-2-hydroxy-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

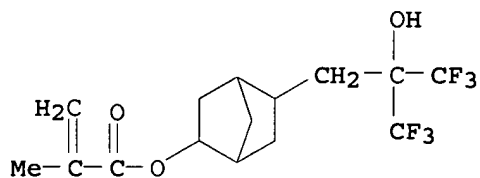
CMF C15 H22 O3



CM 2

CRN 617711-94-1

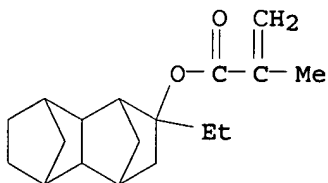
CMF C15 H18 F6 O3



CM 3

CRN 485819-03-2

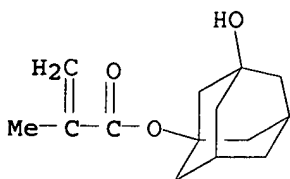
CMF C18 H26 O2



CM 4

CRN 115372-36-6

CMF C14 H20 O3



RN 851866-63-2 HCAPLUS

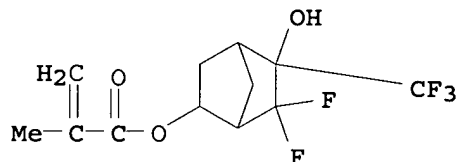
CN 2-Propenoic acid, 2-methyl-, 6,6-difluoro-5-hydroxy-5-

(trifluoromethyl)bicyclo[2.2.1]hept-2-yl ester, polymer with
 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate and
 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate
 (9CI) (CA INDEX NAME)

CM 1

CRN 849803-71-0

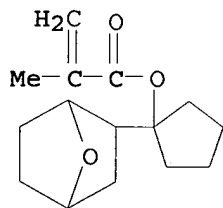
CMF C12 H13 F5 O3



CM 2

CRN 676456-72-7

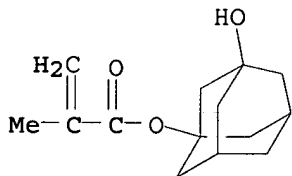
CMF C15 H22 O3



CM 3

CRN 115372-36-6

CMF C14 H20 O3



IC ICM C08F220-18

ICS G03F007-033; G03F007-039; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)

Section cross-reference(s): 38

IT 851866-57-4P 851866-58-5P 851866-59-6P

851866-60-9P 851866-61-0P 851866-62-1P

851866-63-2P

(acrylic polymers having specific acid-labile groups for chemical amplified pos. photoresists)

L26 ANSWER 3 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2005:428605 HCAPLUS
 DOCUMENT NUMBER: 142:472603
 TITLE: Chemical amplification-type positive resist materials and pattern formation
 INVENTOR(S): Hatakeyama, Jun; Kawai, Yoshio
 PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 42 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005128146	A2	20050519	JP 2003-361849	2003 1022
PRIORITY APPLN. INFO.:			JP 2003-361849	2003 1022

OTHER SOURCE(S): MARPAT 142:472603

AB The resist materials comprise (A) ≥ 1 base polymers selected from poly(acrylic acids), their derivs., cycloolefin derivative-maleic anhydride alternating copolymers, cycloolefin derivative-maleic anhydride-acrylic acid derivative copolymers, cycloolefin derivative-maleimide alternating copolymers, cycloolefin derivative-maleimide-acrylic acid derivative copolymers, polynorbornenes, and metathesis ring-opening polymers, (B) $R_4[R_3C(OH)R_1R_2]_n$ (R_1 , R_2 = H, F, C1-4 alkyl, fluorinated alkyl; R_1 and/or R_2 = F-containing group; R_3 = single bond, C1-4 alkylene; R_4 = C4-20 n-valent cycloalkyl; R_4 may contain OH, ether, ester, CO, lactone group; n = 1-4), (C) organic solvents, and (D) acid generators. Patterns are formed by applying the materials on substrates, heating, exposing to high-energy ray or electron beam via photomasks, heating as necessary, and developing. The materials show low line-edge roughness and decreased development residues caused by swelling in development measured by QCM (quartz crystal microbalance) method.

IT 851473-87-5
 (chemical amplification-type pos. resists with low swelling in development for fine pattern formation)

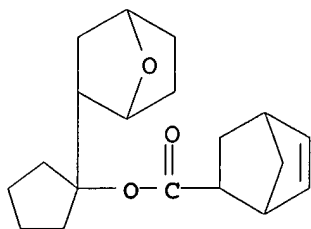
RN 851473-87-5 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, methyl ester, polymer with 2,5-furandione and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl bicyclo[2.2.1]hept-5-ene-2-carboxylate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-74-9

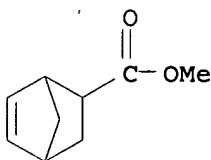
CMF C19 H26 O3



CM 2

CRN 6203-08-3

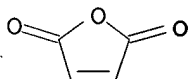
CMF C9 H12 O2



CM 3

CRN 108-31-6

CMF C4 H2 O3



IC ICM G03F007-004
 ICS G03F007-039; H01L021-027
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)
 IT 368872-75-7 485819-05-4 485819-08-7 851473-87-5
 (chemical amplification-type pos. resists with low swelling in
 development for fine pattern formation)

L26 ANSWER 4 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:238524 HCAPLUS

DOCUMENT NUMBER: 142:325926

TITLE: Polymer, resist composition and patterning
 process

INVENTOR(S): Tachibana, Seiichiro; Nishi, Tsunehiro;
 Kobayashi, Tomohiro

PATENT ASSIGNEE(S): Japan

SOURCE: U.S. Pat. Appl. Publ., 46 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005058938	A1	20050317	US 2004-936753	2004 0909
JP 2005105260	A2	20050421	JP 2004-259293	2004 0907
PRIORITY APPLN. INFO.:			JP 2003-320659	A 2003 0912

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT
*

AB A polymer comprises recurring units of formulas I, II, III, IV (R1-3,4,7 = H, Me; R2 = acid labile group; R5,6 = H, hydroxyl; R8 = lactone structure group) and has a Mw of 1,000-50,000. A resist composition comprising the inventive polymer has a sensitivity to high-energy radiation, improved resolution and etching resistance and lends itself to lithog. micropatterning with electron beams or deep UV.

IT 848134-66-7P 848134-67-8P 848134-73-6P
848134-74-7P 848134-79-2P 848134-80-5P
848144-03-6P

(polymer, resist composition for patterning process)

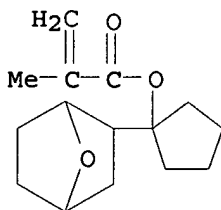
RN 848134-66-7 HCAPLUS

CN 3,5-Methano-2H-cyclopenta[b]furan-7-carboxylic acid, hexahydro-6-[(2-methyl-1-oxo-2-propenyl)oxy]-2-oxo-, methyl ester, polymer with 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate, 2-methyl-2-propenoic acid and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

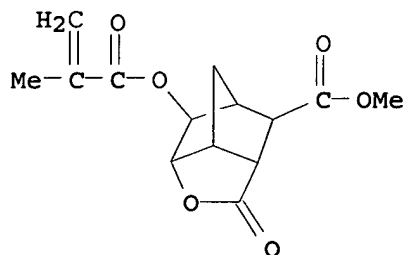
CRN 676456-72-7

CMF C15 H22 O3



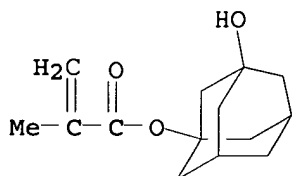
CM 2

CRN 274247-93-7
CMF C14 H16 O6



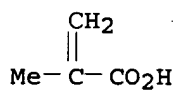
CM 3

CRN 115372-36-6
CMF C14 H20 O3



CM 4

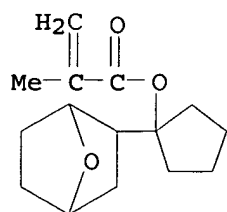
CRN 79-41-4
CMF C4 H6 O2



RN 848134-67-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, polymer with hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

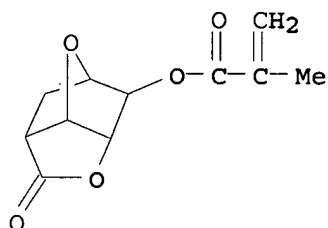
CRN 676456-72-7
CMF C15 H22 O3



CM 2

CRN 274248-05-4

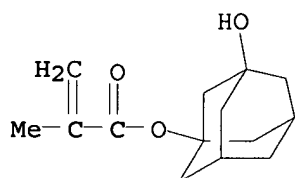
CMF C11 H12 O5



CM 3

CRN 115372-36-6

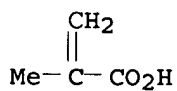
CMF C14 H20 O3



CM 4

CRN 79-41-4

CMF C4 H6 O2



RN 848134-73-6 HCAPLUS

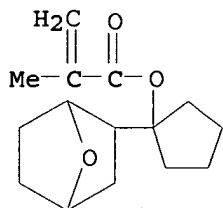
CN 3,5-Methano-2H-cyclopenta[b]furan-7-carboxylic acid,
 hexahydro-6-[(2-methyl-1-oxo-2-propenyl)oxy]-2-oxo-, methyl ester,
 polymer with 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-propenoate,

2-methyl-2-propenoic acid and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

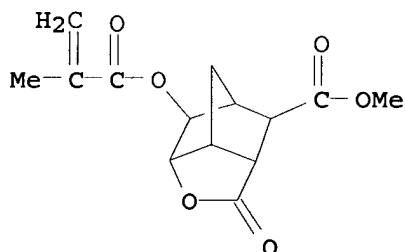
CMF C15 H22 O3



CM 2

CRN 274247-93-7

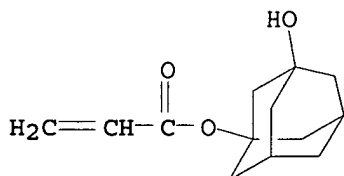
CMF C14 H16 O6



CM 3

CRN 216581-76-9

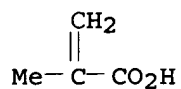
CMF C13 H18 O3



CM 4

CRN 79-41-4

CMF C4 H6 O2



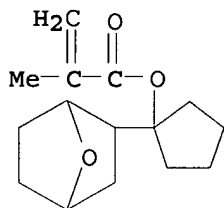
RN 848134-74-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

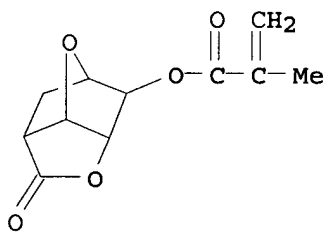
CMF C15 H22 O3



CM 2

CRN 274248-05-4

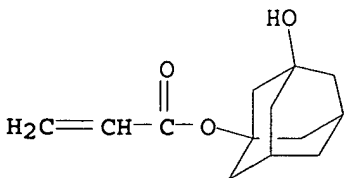
CMF C11 H12 O5



CM 3

CRN 216581-76-9

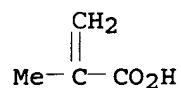
CMF C13 H18 O3



CM 4

CRN 79-41-4

CMF C4 H6 O2



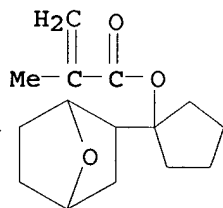
RN 848134-79-2 HCAPLUS

CN 3,5-Methano-2H-cyclopenta[b]furan-7-carboxylic acid, hexahydro-2-oxo-6-[(1-oxo-2-propenyl)oxy]-, methyl ester, polymer with 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-propenoate, 2-methyl-2-propenoic acid and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

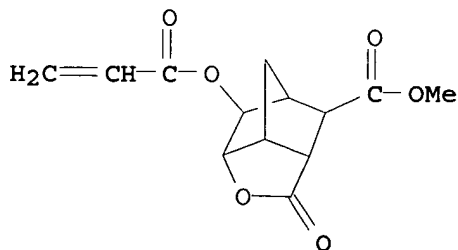
CMF C15 H22 O3



CM 2

CRN 449759-66-4

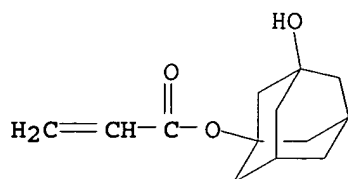
CMF C13 H14 O6



CM 3

CRN 216581-76-9

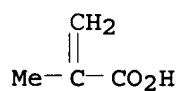
CMF C13 H18 O3



CM 4

CRN 79-41-4

CMF C4 H6 O2



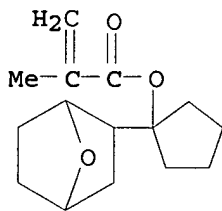
RN 848134-80-5 HCAPLUS

CM 2-Propenoic acid, 2-methyl-, polymer with hexahydro-2-oxo-2,6-methanofuro[3,2-b]furan-6-yl 2-propenoate, 3-hydroxytricyclo[3.3.1.1.3,7]dec-1-yl 2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

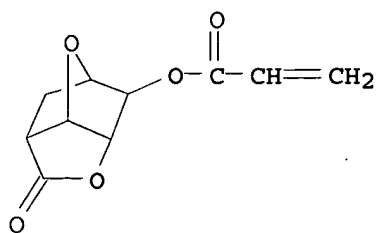
CMF C15 H22 O3



CM 2

CRN 500556-61-6

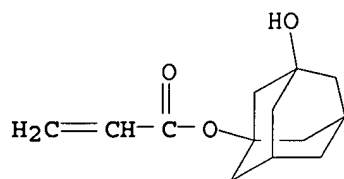
CMF C10 H10 O5



CM 3

CRN 216581-76-9

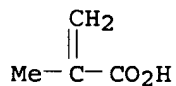
CMF C13 H18 O3



CM 4

CRN 79-41-4

CMF C4 H6 O2



RN 848144-03-6 HCAPLUS

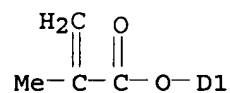
CN 2-Propenoic acid, 2-methyl-, polymer with dihydro-2'-oxospiro[bicyclo[2.2.1]heptane-2,3'-(2'H)-furan]-5(or 6)-yl 2-methyl-2-propenoate, dihydro-5'-oxospiro[bicyclo[2.2.1]heptane-2,3'-(2'H)-furan]-5(or 6)-yl 2-methyl-2-propenoate, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 848143-98-6

CMF C14 H18 O4

CCI IDS

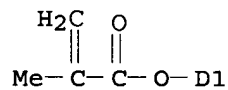
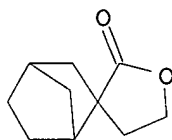


CM 2

CRN 848143-97-5

CMF C14 H18 O4

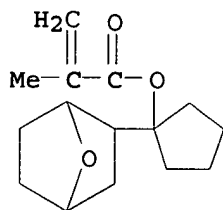
CCI IDS



CM 3

CRN 676456-72-7

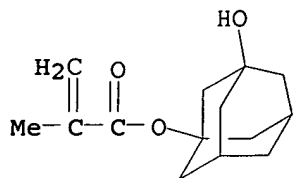
CMF C15 H22 O3



CM 4

CRN 115372-36-6

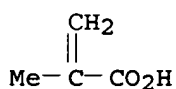
CMF C14 H20 O3



CM 5

CRN 79-41-4

CMF C4 H6 O2



IC ICM G03C001-76

INCL 430270100

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 35, 38

IT 485819-05-4P 651043-12-8P 651043-87-7P 811440-94-5P
 848134-56-5P 848134-57-6P 848134-58-7P 848134-59-8P
 848134-60-1P 848134-61-2P 848134-62-3P 848134-63-4P
 848134-65-6P **848134-66-7P 848134-67-8P**
 848134-68-9P 848134-69-0P 848134-70-3P 848134-71-4P
 848134-72-5P **848134-73-6P 848134-74-7P**
 848134-75-8P 848134-76-9P 848134-77-0P 848134-78-1P
848134-79-2P 848134-80-5P 848134-81-6P
 848134-82-7P 848134-83-8P 848134-84-9P 848134-85-0P
 848134-86-1P 848134-87-2P 848134-88-3P 848143-99-7P
 848144-00-3P 848144-01-4P 848144-02-5P **848144-03-6P**
 (polymer, resist composition for patterning process)

L26 ANSWER 5 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:135758 HCAPLUS

DOCUMENT NUMBER: 142:228725

TITLE: Oxygen plasma-resistant radiation-sensitive resists, their patterning, and macromolecules therefor

INVENTOR(S): Hatakeyama, Jun; Takeda, Takanobu; Watanabe, Osamu

PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 72 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

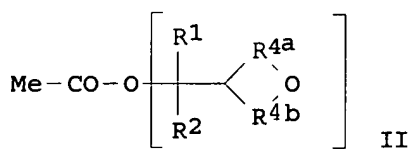
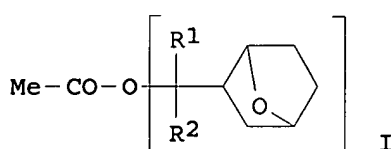
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005042085	A2	20050217	JP 2004-14354	

				2004 0122
US 2005260521	A1	20051124	US 2004-765919	
				2004 0129
PRIORITY APPLN. INFO.:			JP 2003-21416	A
				2003 0130
			JP 2003-194033	A
				2003 0709

GI



AB The macromols. have Si-bearing repeating unit and unit (i) MeCO₂[CR₁R₂(A₁R₃)] [A₁ = (tetrahydro)furandiyl, oxanorbornanediyl; R₁, R₂ = C₁-10 hydrocarbyl; R₃ = H, C₁-10 hydrocarbyl], (ii) I (R'₁, R'₂ = C₁-10 hydrocarbyl), and/or (iii) II [R''₁, R''₂ = C₁-10 hydrocarbyl; C₁-10 hydrocarbyl; R_{4a}, R_{4b} = single bond, C₁-4 alk(ne)ylene within total C number of 3-60]. Pos.-working (chemical-amplified) resists containing the macromols., and their patterning with ≤300-nm high-energy or electron beams are also claimed. The resist patterns are resistant against O plasma and Cl- or Br-containing gas etchants.

IT 843647-84-7P 843647-85-8P 843647-86-9P
843647-87-0P 843647-88-1P 843647-89-2P
(photoresists; Si- and prescribed cyclic group-containing polymers for oxygen plasma-resistant pos. photoresists)

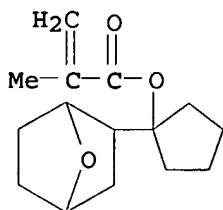
RN 843647-84-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester, polymer with 4-ethenylphenol and 2-[2,2,2-trimethyl-1,1-bis(trimethylsilyl)disilanyl]ethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

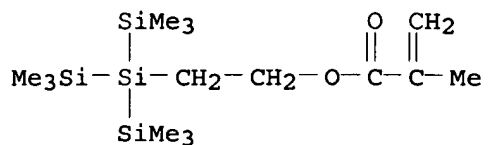
CMF C15 H22 O3



CM 2

CRN 211369-53-8

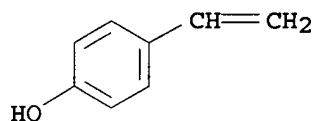
CMF C15 H36 O2 Si4



CM 3

CRN 2628-17-3

CMF C8 H8 O



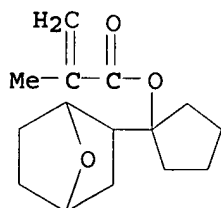
RN 843647-85-8 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl ester, polymer with 4-ethenylphenol, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate and 2-[2,2,2-trimethyl-1,1-bis(trimethylsilyl)disilanyl]ethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

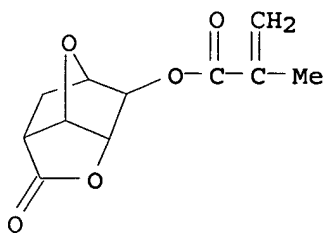
CMF C15 H22 O3



CM 2

CRN 274248-05-4

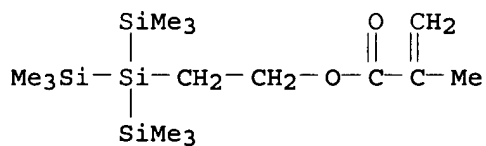
CMF C11 H12 O5



CM 3

CRN 211369-53-8

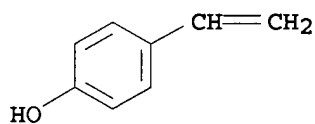
CMF C15 H36 O2 Si4



CM 4

CRN 2628-17-3

CMF C8 H8 O



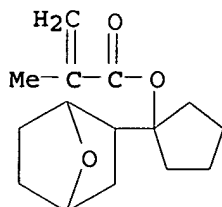
RN 843647-86-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester, polymer with ethenylheptamethylcyclotetrasiloxane and 2,5-furandione (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

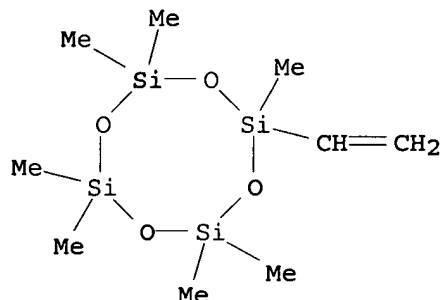
CMF C15 H22 O3



CM 2

CRN 3763-39-1

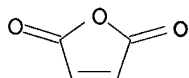
CMF C9 H24 O4 Si4



CM 3

CRN 108-31-6

CMF C4 H2 O3



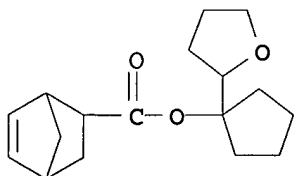
RN 843647-87-0 HCAPLUS

CM Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-(tetrahydro-2-furanyl)cyclopentyl ester, polymer with ethenylheptamethylcyclotetrasiloxane, 2,5-furandione and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-73-8

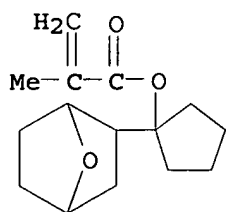
CMF C17 H24 O3



CM 2

CRN 676456-72-7

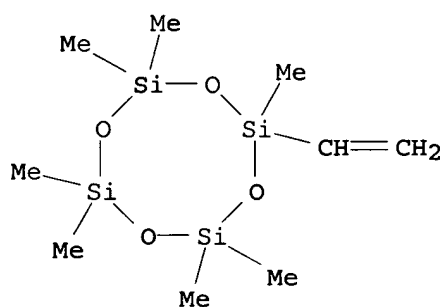
CMF C15 H22 O3



CM 3

CRN 3763-39-1

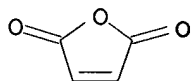
CMF C9 H24 O4 Si4



CM 4

CRN 108-31-6

CMF C4 H2 O3



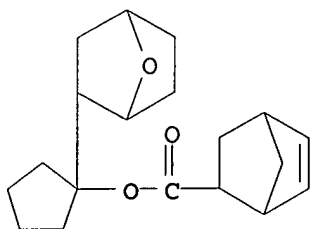
RN 843647-88-1 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester, polymer with 2,5-furandione and hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-74-9

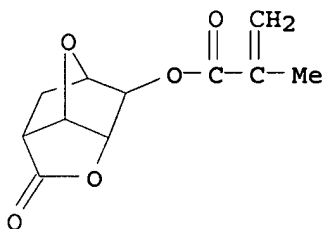
CMF C19 H26 O3



CM 2

CRN 274248-05-4

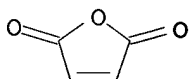
CMF C11 H12 O5



CM 3

CRN 108-31-6

CMF C4 H2 O3



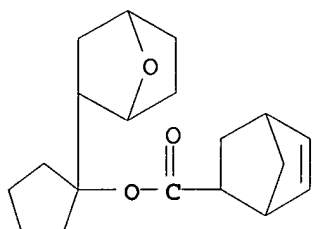
RN 843647-89-2 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-(heptacyclopentylpentacyclo[9.5.1.1.1.3,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl bicyclo[2.2.1]hept-5-ene-2-carboxylate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-74-9

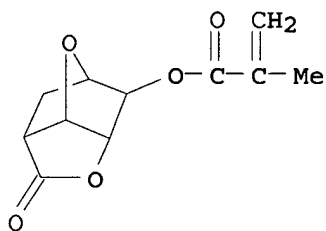
CMF C19 H26 O3



CM 2

CRN 274248-05-4

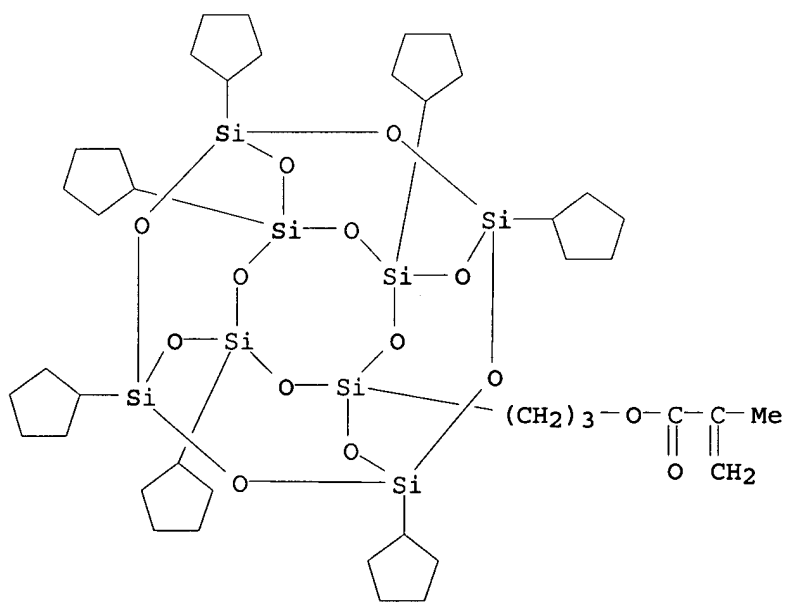
CMF C11 H12 O5



CM 3

CRN 169391-91-7

CMF C42 H74 O14 Si8



IC ICM C08F230-08

ICS G03F007-039; G03F007-075; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 Section cross-reference(s): 38
 IT 843647-82-5P 843647-84-7P 843647-85-8P
 843647-86-9P 843647-87-0P 843647-88-1P
 843647-89-2P
 (photoresists; Si- and prescribed cyclic group-containing polymers for oxygen plasma-resistant pos. photoresists)

L26 ANSWER 6 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:33606 HCAPLUS

DOCUMENT NUMBER: 142:103181

TITLE: Acrylic polymers, their chemically amplified positive photoresists with high resolution and sensitivity and suppressed line edge roughness, and photolithography using them
 INVENTOR(S): Hatakeyama, Jun; Watanabe, Takeshi; Takeda, Takanobu

PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 58 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

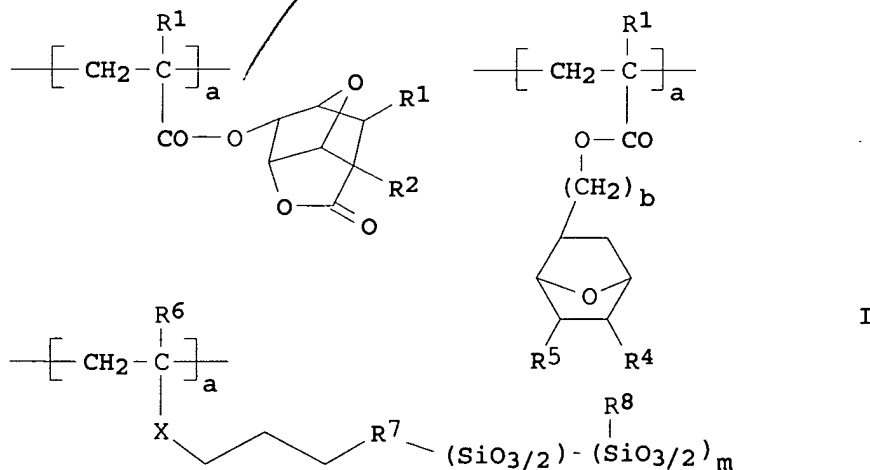
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005008765	A2	20050113	JP 2003-174894	2003 0619
PRIORITY APPLN. INFO.:				2003 0619

GI



AB The acrylic polymers contain repeating units I (R1, R6 = H, Me, F,

CF₃, CN, CH₂CO₂R₁₂, CH₂OR₁₃; R₂ = H, Me, CN; R₃ = H, ester; R₄, R₅ = H, ester, lactone-containing group; R₈ = H, C₁-10 alkyl, fluorinated alkyl; R₇ = single bond, (SiR₉R₁₀R₁₁)_n; R₉, R₁₀ = C₁-10 alkyl; R₁₁ = single bond, O, C₁-4 alkylene; X = ester, ether; a, b ≥ 0; c > 0; 0 < (a + b)/(a + b + c) < 0.8; 0 < c/(a + b + c) < 0.5; m = 4-40; n = 1-20; p = 0-2; R₁₂ = C₁-4 alkyl; R₁₃ = H, C₁-4 alkyl, C₁-4 acyl] and other repeating units that increase alkali solubility of the polymers in the presence of acids. The photolithog. may involve etching with O plasma or halogen gases containing Cl or Br.

IT 819837-32-6P

(acrylic polymers having oxonorbornane and polyhedral oligosilsesquioxane pendants for pos. photoresists with high resolution and suppressed line edge roughness)

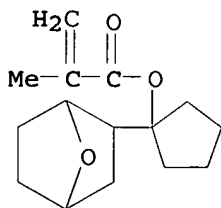
RN 819837-32-6 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-(heptacyclopentylpentacyclo[9.5.1.1 3,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

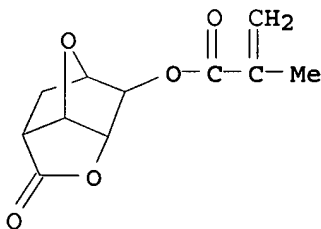
CMF C15 H22 O3



CM 2

CRN 274248-05-4

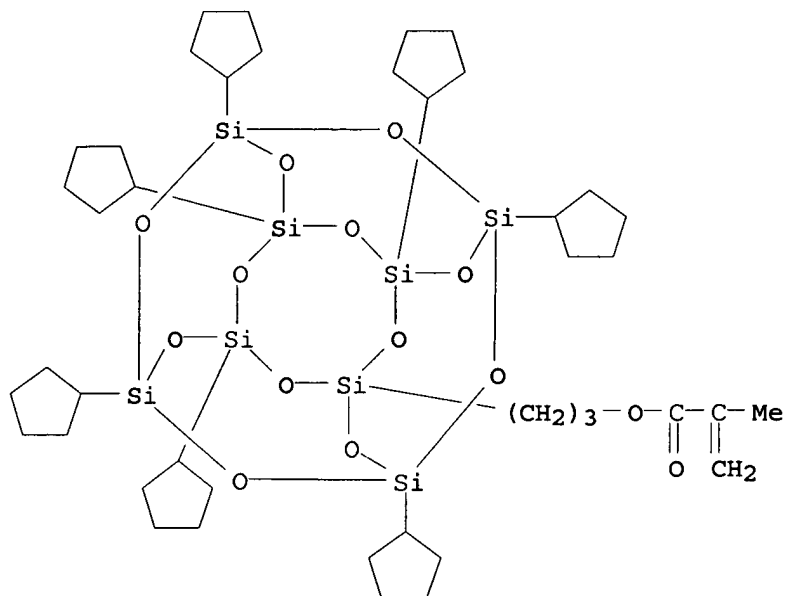
CMF C11 H12 O5



CM 3

CRN 169391-91-7

CMF C42 H74 O14 Si8



IC ICM C08F230-08
 ICS G03F007-039; G03F007-075
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)
 Section cross-reference(s): 38
 IT 819837-18-8P 819837-20-2P 819837-22-4P 819837-23-5P
 819837-25-7P 819837-27-9P 819837-29-1P 819837-31-5P
819837-32-6P 819837-34-8P
 (acrylic polymers having oxonorbornane and polyhedral
 oligosilsesquioxane pendants for pos. photoresists with high
 resolution and suppressed line edge roughness)

L26 ANSWER 7 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:1036753 HCAPLUS

DOCUMENT NUMBER: 142:30014

TITLE: Silicon-containing polymer, resist composition
 and patterning process

INVENTOR(S): Hatakeyama, Jun; Takeda, Takanobu

PATENT ASSIGNEE(S): Japan

SOURCE: U.S. Pat. Appl. Publ., 38 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004242821	A1	20041202	US 2004-853783	2004 0526
JP 2004352743	A2	20041216	JP 2003-148656	2003 0527
PRIORITY APPLN. INFO.:			JP 2003-148656	A 2003

0527

AB Novel silicon-containing polymers are provided comprising recurring units having a POSS pendant and units which improve alkali solubility under the action of an acid. Resist compns. comprising the polymers are sensitive to high-energy radiation and have a high sensitivity and resolution at a wavelength of up to 300 nm and improved resistance to oxygen plasma etching.

IT 802917-23-3P

(silicon-containing polymer, resist composition and patterning process)

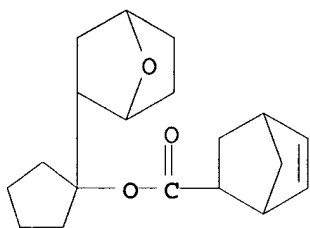
RN 802917-23-3 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester, polymer with 2,5-furandione and heptacyclopentyl[(ethenyldimethylsilyl)oxy]pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane (9CI) (CA INDEX NAME)

CM 1

CRN 676456-74-9

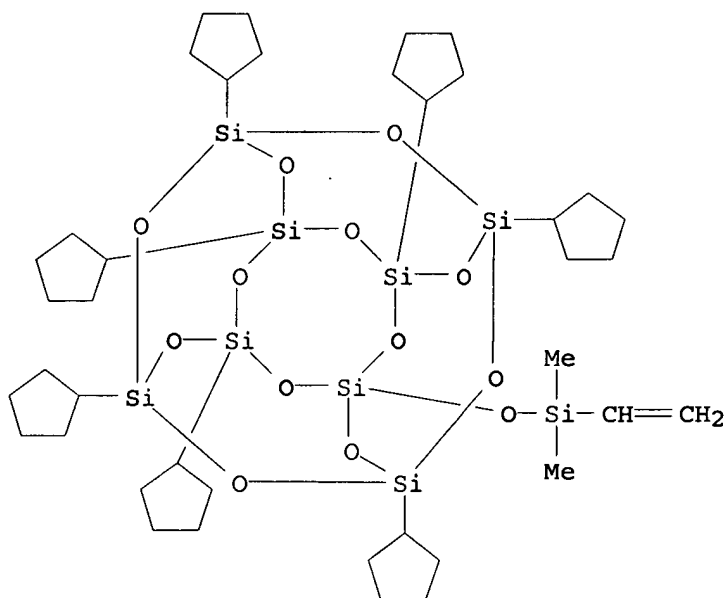
CMF C19 H26 O3



CM 2

CRN 312693-40-6

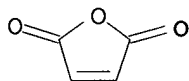
CMF C39 H72 O13 Si9



CM 3

CRN 108-31-6

CMF C4 H2 O3



IC ICM G03F007-004

ICS C08F122-04; C08F222-04

INCL 526250000; 430270100; 430322000; 430330000; 526271000; 526279000

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38

IT 802917-18-6P 802917-19-7P 802917-20-0P 802917-21-1P

802917-22-2P 802917-23-3P 802917-24-4P 802917-25-5P

(silicon-containing polymer, resist composition and patterning process)

L26 ANSWER 8 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:261017 HCAPLUS

DOCUMENT NUMBER: 140:311986

TITLE: Ester compounds, polymers, resist compositions and patterning process

INVENTOR(S): Hasegawa, K.; Kinsho, T.; Watanabe, T.

PATENT ASSIGNEE(S): Shin-Etsu Chemical Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 48 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1403295	A2	20040331	EP 2003-256075	2003 0926
EP 1403295	A3	20040414		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2004143153	A2	20040520	JP 2003-330904	2003 0924
US 2004068124	A1	20040408	US 2003-671948	2003 0929
PRIORITY APPLN. INFO.:			JP 2002-285161	A 2002 0930

OTHER SOURCE(S): MARPAT 140:311986

AB The present invention relates to novel ester compds. having formula: $A1C(=O)OCR1R2A2-R3$ ($A1$ = polymerizable functional group having a double bond; $A2$ = furan-diyl, tetrahydrofurandiyl or oxa-norbornane-diyl; $R1,2$ = monovalent hydrocarbon group, or $R1$ and $R2$ may bond together to form an aliphatic hydrocarbon ring with the carbon atom; $R3$ = hydrogen or a monovalent hydrocarbon group which may contain a hetero atom are polymerizable into polymers). Resist compns. comprising the polymers are sensitive to high-energy radiation, have an improved sensitivity, resolution, and etching resistance, and lend themselves to micropatterning with electron beams or deep-UV rays.

IT 676456-76-1P 676456-77-2P 676456-78-3P

676456-79-4P 676456-80-7P 676456-81-8P

(ester compds. for polymers and photoresist compns.)

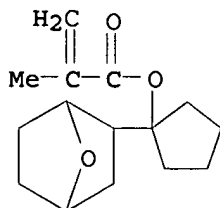
RN 676456-76-1 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl ester, polymer with 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

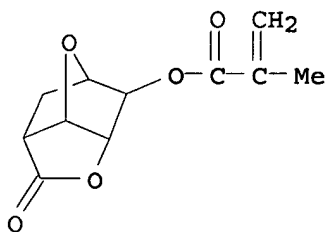
CRN 676456-72-7

CMF C15 H22 O3



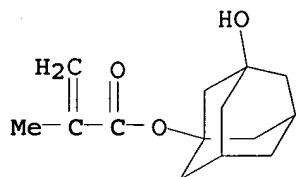
CM 2

CRN 274248-05-4
CMF C11 H12 O5



CM 3

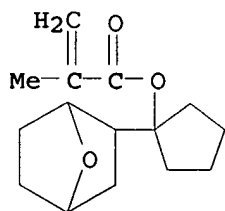
CRN 115372-36-6
CMF C14 H20 O3



RN 676456-77-2 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl ester, polymer with 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

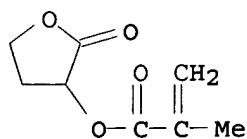
CM 1

CRN 676456-72-7
CMF C15 H22 O3



CM 2

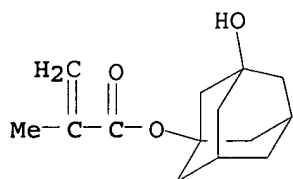
CRN 195000-66-9
CMF C8 H10 O4



CM 3

CRN 115372-36-6

CMF C14 H20 O3



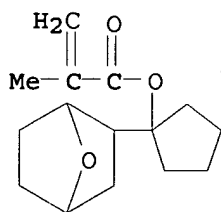
RN 676456-78-3 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-ethyldecahydro-1,4:5,8-dimethanonaphthalen-2-yl ester, polymer with hexahydro-5-oxo-2,6-dimethanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

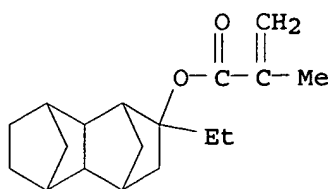
CMF C15 H22 O3



CM 2

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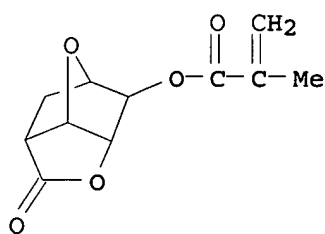
CMF C18 H26 O2



CM 3

CRN 274248-05-4

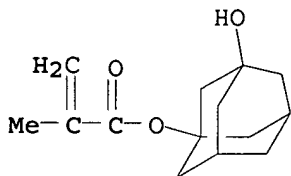
CMF C11 H12 O5



CM 4

CRN 115372-36-6

CMF C14 H20 O3



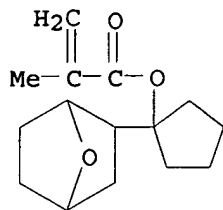
RN 676456-79-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-ethyltricyclo[3.3.1.1^{3,7}]dec-2-yl
 ester, polymer with 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl
 2-methyl-2-propenoate, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl
 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl
 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

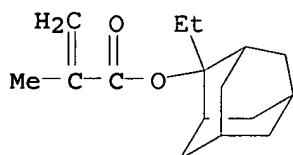
CMF C15 H22 O3



CM 2

CRN 209982-56-9

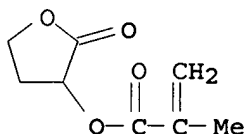
CMF C16 H24 O2



CM 3

CRN 195000-66-9

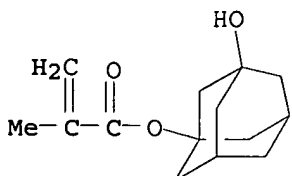
CMF C8 H10 O4



CM 4

CRN 115372-36-6

CMF C14 H20 O3



RN 676456-80-7 HCAPLUS

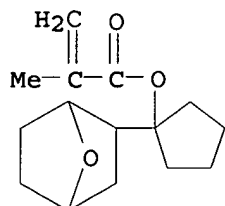
CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, tetrahydro-2-oxo-3-furanyl ester, polymer with 2,5-furandione and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate

(9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

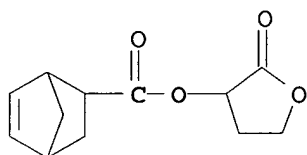
CMF C15 H22 O3



CM 2

CRN 264193-09-1

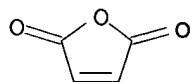
CMF C12 H14 O4



CM 3

CRN 108-31-6

CMF C4 H2 O3



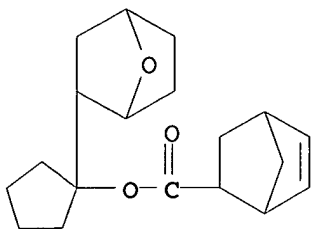
RN 676456-81-8 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester, polymer with 2,5-furandione and tetrahydro-2-oxo-3-furanyl bicyclo[2.2.1]hept-5-ene-2-carboxylate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-74-9

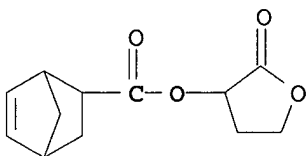
CMF C19 H26 O3



CM 2

CRN 264193-09-1

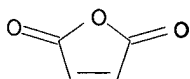
CMF C12 H14 O4



CM 3

CRN 108-31-6

CMF C4 H2 O3



IC ICM C08F020-30
ICS C08F032-08; G03F007-039
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
Other Reprographic Processes)
Section cross-reference(s): 35, 38
IT 676456-75-0P 676456-76-1P 676456-77-2P
676456-78-3P 676456-79-4P 676456-80-7P
676456-81-8P
(ester compds. for polymers and photoresist compns.)

L26 ANSWER 9 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:56212 HCAPLUS

DOCUMENT NUMBER: 138:115060

TITLE: Cycloalkenyl epoxy compounds, their polymers,
positive photoresists containing them with
high resolution and good adhesion to
substrates, and photolithography using them
INVENTOR(S): Hasegawa, Koji; Kaneo, Takeshi; Watanabe,
Takeshi

PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan

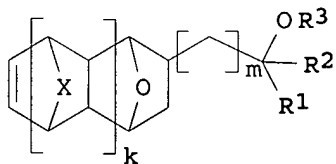
SOURCE: Jpn. Kokai Tokkyo Koho, 37 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
JP 2003020313	A2	20030124	JP 2001-207289	2001 0709
US 2003050398	A1	20030313	US 2002-189706	2002 0703
US 2005142491	A1	20050630	US 2005-57008	2005 0211
PRIORITY APPLN. INFO.:			JP 2001-207289	A 2001 0709
			US 2002-189706	A3 2002 0703

OTHER SOURCE(S): MARPAT 138:115060
 GI



AB The invention relates to epoxy compds. I (R1, R2 = H, C1-10-alkyl, etc.; R3 = C1-10-alkyl, C1-15-acyl, C1-15-alkoxycarbonyl, etc.; X = CH2, O, S; k = 0, 1; m = 0-5). The photoresists are sensitive to ArF excimer laser beams.

IT 488720-38-3P 488720-40-7P
 (cycloalkenyl epoxide polymers for ArF laser-sensitive high-resolution pos. photoresists with good adhesion to substrates)

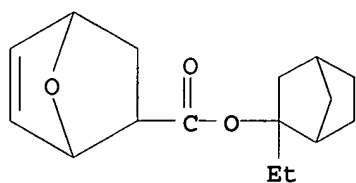
RN 488720-38-3 HCAPLUS

CN 7-Oxabicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 2-ethylbicyclo[2.2.1]hept-2-yl ester, polymer with (α,α-dimethyl-7-oxabicyclo[2.2.1]hept-5-en-2-yl)methyl acetate and 2,5-furandione (9CI) (CA INDEX NAME)

CM 1

CRN 488720-34-9

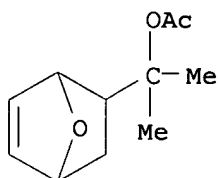
CMF C16 H22 O3



CM 2

CRN 488720-33-8

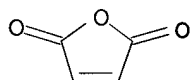
CMF C11 H16 O3



CM 3

CRN 108-31-6

CMF C4 H2 O3



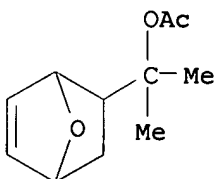
RN 488720-40-7 HCAPLUS

CN 2-Propenoic acid, 2-ethyltricyclo[3.3.1.1^{3,7}]dec-2-yl ester,
polymer with (α,α-dimethyl-7-oxabicyclo[2.2.1]hept-5-
en-2-yl)methyl acetate and 2,5-furandione (9CI) (CA INDEX NAME)

CM 1

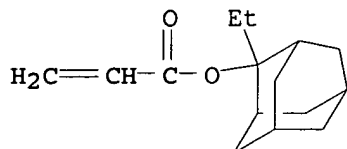
CRN 488720-33-8

CMF C11 H16 O3



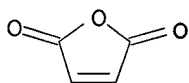
CM 2

CRN 303186-14-3
CMF C15 H22 O2



CM 3

CRN 108-31-6
CMF C4 H2 O3



IC ICM C08F034-00
ICS C08G061-12; G03F007-039
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT 488720-35-0P 488720-36-1P 488720-37-2P **488720-38-3P**
488720-39-4P **488720-40-7P** 488720-41-8P 488720-43-0P
(cycloalkenyl epoxide polymers for ArF laser-sensitive high-resolution pos. photoresists with good adhesion to substrates)

L26 ANSWER 10 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:716915 HCAPLUS

DOCUMENT NUMBER: 137:270511

TITLE: Polymers, resist materials, and pattern formation method

INVENTOR(S): Nishi, Tsunehiro; Hasegawa, Koji; Nakashima, Mutsuo

PATENT ASSIGNEE(S): Shin-Etsu Chemical Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 37 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

ND	DATE	APPLICATION NO.	DATE
---	-----	-----	
A1	20020919	US 2002-50478	2002 0116
B2	20040113		
B	20030901	TW 2002-91100626	2002 0116
A2	20021018	JP 2002-8244	

USHA SHRESTHA EIC 1700 REM 4B28

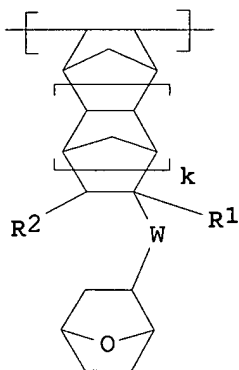
PRIORITY APPLN. INFO.:

JP 2001-8613

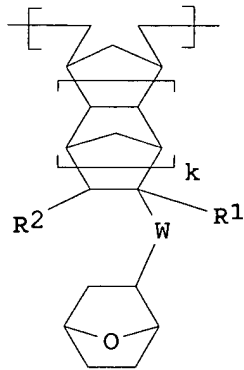
A

2002
01172001
0117

GI



I



II

AB The present invention provides (1) a polymer which has excellent reactivity, rigidity and adhesion to the substrate, and undergoes a low degree of swelling during development, (2) a resist material which uses this polymer as the base resin and hence exhibits much higher resolving power and etching resistance than conventional resist materials, and (3) a pattern formation method using this resist material. Specifically, the present invention provides a novel polymer containing repeating units represented by I, II (R1 = H, Me, CH₂CO₂R₃; R₂ = H, Me, CO₂R₃; R₃ = C₁-15 alkyl; W = C₂-20 divalent hydrocarbon radical, which may have ≥ 1 ester linkage in its structure and may further be substituted by one or more other atomic group containing a heteroatom; k = 0,1) and having a weight-average mol. weight of 1,000-500,000, a resist material using the polymer as a base resin, and a pattern formation method using the resist material.

IT 461671-55-6P

(polymers, photoresist materials, and pattern formation method)

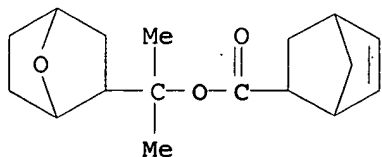
RN 461671-55-6 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 2-ethylbicyclo[2.2.1]hept-2-yl ester, polymer with 2,5-furandione and 1-methyl-1-(7-oxabicyclo[2.2.1]hept-2-yl)ethyl bicyclo[2.2.1]hept-5-ene-2-carboxylate (9CI) (CA INDEX NAME)

CM 1

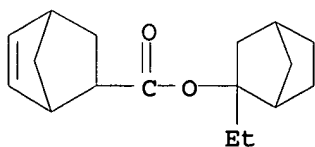
CRN 461671-54-5

CMF C17 H24 O3



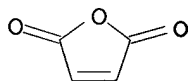
CM 2

CRN 330596-01-5
CMF C17 H24 O2



CM 3

CRN 108-31-6
CMF C4 H2 O3



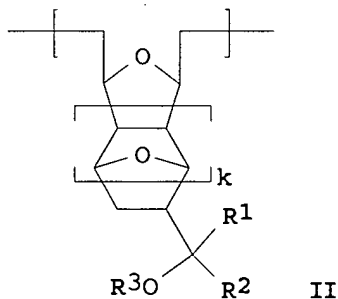
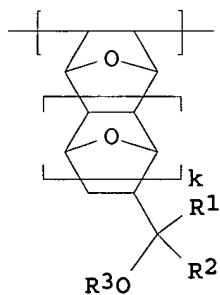
IC ICM G03F007-039
ICS G03F007-38; G03F007-40
INCL 430270100
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 35, 38
IT 461671-53-4P **461671-55-6P** 461671-57-8P 461671-59-0P
461671-60-3P 461671-61-4P 461671-62-5P 461671-63-6P
461671-64-7P 461671-65-8P 461671-66-9P 461671-68-1P
(polymers, photoresist materials, and pattern formation method)
REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L26 ANSWER 11 OF 11 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2002:575607 HCAPLUS
DOCUMENT NUMBER: 137:132115
TITLE: Polymer, resist composition and patterning process
INVENTOR(S): Nishi, Tsunehiro; Nakashima, Mutsuo; Kobayashi, Tomohiro
PATENT ASSIGNEE(S): Shin-Etsu Chemical Co., Ltd., Japan
SOURCE: U.S. Pat. Appl. Publ., 35 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent

LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002102493	A1	20020801	US 2001-221	2001 1204
US 6670094	B2	20031230		
JP 2002234913	A2	20020823	JP 2001-363803	2001 1129
TW 527523	B	20030411	TW 2001-90129860	2001 1203
PRIORITY APPLN. INFO.:			JP 2000-368672	A 2000 1204

GI



AB The present invention relates to a polymer comprising recurring units of I, II (R1,2 = H, C1-15 alkyl, R1,2 taken together, may form a ring; R3 = H, C1-15 alkyl, acyl or alkylsulfonyl or C2-15 alkoxy carbonyl or alkoxyalkyl which may have halogen substituents; not all R1-3 are hydrogen; k = 0 or 1) and having a Mw of 1,000-500,000.. The present invention relates to a photoresist composition comprising the polymer as a base resin which is sensitive to high-energy radiation, has excellent sensitivity, resolution, etching resistance, and minimized swell and lends itself to micropatterning with electron beams or deep-UV.

IT 444045-74-3P

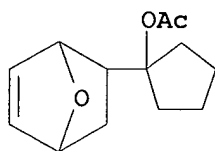
(polymer photoresist composition for patterning process)

RN 444045-74-3 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 2-ethylbicyclo[2.2.1]hept-2-yl ester, polymer with 2,5-furandione and 1-(7-oxabicyclo[2.2.1]hept-5-en-2-yl)cyclopentyl acetate (9CI)
 (CA INDEX NAME)

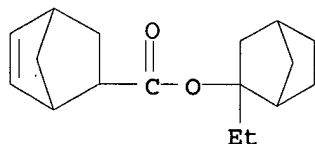
CM 1

CRN 444045-73-2
CMF C13 H18 O3



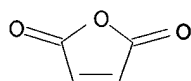
CM 2

CRN 330596-01-5
CMF C17 H24 O2



CM 3

CRN 108-31-6
CMF C4 H2 O3



IC ICM G03F007-038
ICS G03F007-38; G03F007-40; G03F007-30
INCL 430270100
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
Other Reprographic Processes)
Section cross-reference(s): 35, 38
IT 444045-74-3P 444045-76-5P 444045-78-7P 444105-77-5P
444105-79-7P 444105-81-1P 444105-83-3P 444105-85-5P
(polymer photoresist composition for patterning process)

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Sin J. Lee Examiner #: 76060 Date: 12-19-05
 Art Unit: 1752 Phone Number 302-1333 Serial Number: 10/765,919
 Mail Box and Bldg/Room Location: 4066 Results Format Preferred (circle): PAPER DISK E-MAIL
 (Rem.)

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: P12. See Bib.

Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

P12. search for a polymer
 having the repeat unit, which
 contains a substituent gp. of the formula (1).
 Shown in ex. #1

SCIENTIFIC REFERENCE BR
 Sci & Tech Inf. Cntr

DEC 19 2005

Pat. & T.M. Office

STAFF USE ONLY

	Type of Search	Vendors and cost where applicable
Searcher: <u>usl</u>	NA Sequence (#) _____	STN <u>\$300.14</u>
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) <u>1</u>	Questel/Orbit _____
Date Searcher Picked Up: <u>12/22/05</u>	Bibliographic _____	Dr. Link _____
Date Completed: <u>12/22/05</u>	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: <u>30</u>	Fulltext _____	Sequence Systems _____
Clerical Prep Time: <u>30</u>	Patent Family _____	WWW/Internet _____
Online Time: <u>52</u>	Other _____	Other (specify) _____

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 Alexandria, Virginia 22313-1450
 www.uspto.gov



Bib Data Sheet

CONFIRMATION NO. 4118

SERIAL NUMBER 10765,919	FILING DATE 01/29/2004 RULE	CLASS 430	GROUP ART UNIT 1752	ATTORNEY DOCKET NO. 0171-1058P
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APPLICANTS

Jun Hatakeyama, Niigata-ken, JAPAN;

Takanobu Takeda, Niigata-ken, JAPAN;

Osamu Watanabe, Niigata-ken, JAPAN;

** CONTINUING DATA *****
 None SJL

** FOREIGN APPLICATIONS *****
 JAPAN 2003-021416 01/30/2003) SJL
 JAPAN 2003-194033 07/09/2003)

IF REQUIRED, FOREIGN FILING LICENSE GRANTED

** 08/18/2005

Foreign Priority claimed <input checked="" type="checkbox"/> yes <input type="checkbox"/> no	STATE OR COUNTRY JAPAN	SHEETS DRAWING 2	TOTAL CLAIMS 13	INDEPENDENT CLAIMS 4
35 USC 119 (a-d) conditions met <input checked="" type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> Met after Allowance				
Verified and Acknowledged <i>[Signature]</i> Examiner's Signature	Initials SJL			

ADDRESS

02292

BIRCH STEWART KOLASCH & BIRCH

PO BOX 747

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22040-0747

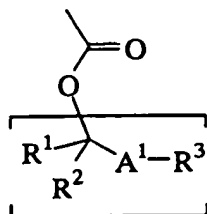
TITLE

Polymer, resist composition and patterning process

FILING FEE RECEIVED	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	<input type="checkbox"/> All Fees
		<input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time)

CLAIMS:

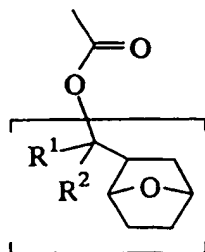
1. A polymer comprising recurring units containing silicon and recurring units having a substituent group of the general formula (1):



(1)

wherein A¹ is a divalent group selected from furandiyl, tetrahydrofurandiyl and oxanorbornanediyl, R¹ and R² are independently selected from straight, branched or cyclic monovalent hydrocarbon groups of 1 to 10 carbon atoms, or R¹ and R² taken together may form an aliphatic hydrocarbon ring with the carbon atom to which they are attached, and R³ is hydrogen or a straight, branched or cyclic monovalent hydrocarbon group of 1 to 10 carbon atoms which may contain a hetero atom.

2. A polymer comprising recurring units containing silicon and recurring units having a substituent group of the general formula (2):



(2)

wherein R¹ and R² are independently selected from straight, branched or cyclic monovalent hydrocarbon groups of 1 to 10

=> fil reg

FILE 'REGISTRY' ENTERED AT 11:01:48 ON 22 DEC 2005

=> d his

FILE 'HCAPLUS' ENTERED AT 09:06:02 ON 22 DEC 2005

L1 1 S US20050260521/PN
SEL RN

FILE 'REGISTRY' ENTERED AT 09:06:31 ON 22 DEC 2005

L2 12 S E1-E12

FILE 'LREGISTRY' ENTERED AT 09:40:05 ON 22 DEC 2005

L3 STR
L4 STR

FILE 'REGISTRY' ENTERED AT 09:43:41 ON 22 DEC 2005

L5 SCR 2043
L6 0 S L3 AND L4 AND L5
L7 0 S L3 AND L4
L8 SCR 1146 OR 1135
L9 2 S L3 AND L8
L10 STR L3
L11 0 S L10 AND L4
L12 2 S L10 AND L8
L13 2 S L10 AND L5 AND L8
L14 110 S L10 AND L5 AND L8 FUL
SAV L14 LEE919/A
L15 7 S L14 AND L2
L16 30 S L14 AND 103.61.1/RID
L17 13 S L14 AND 16.138.6/RID
L18 40 S L14 AND 16.138/RID
L19 STR L10
L20 1 S L19 AND L5 AND L8
L21 157 S L19 AND L5 AND L8 FUL
SAV L21 LEE919A/A
L22 167 S L14 OR L21
L23 33 S L22 AND 103.61/RID
L24 45 S L22 AND 16.138/RID

FILE 'HCAPLUS' ENTERED AT 10:32:56 ON 22 DEC 2005

L25 131 S L22
L26 11 S L23
L27 33 S L24
L28 34 S L26 OR L27
L29 97 S L25 NOT L28

FILE 'REGISTRY' ENTERED AT 10:35:45 ON 22 DEC 2005

L30 110 S L22 NOT 1-20/N

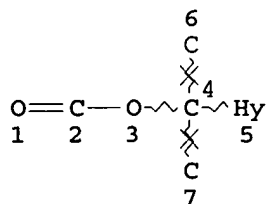
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L31 65 S L30
L32 32 S L31 NOT L28
L33 34 S L31 AND PHOTOG?/SC
L34 1 S L33 NOT L28

=> d que 127

L5 SCR 2043

L8 SCR 1146 OR 1135
L10 STR



NODE ATTRIBUTES:

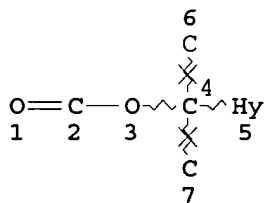
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DEFAULT MLEVEL IS ATOM
GGCAT IS SAT AT 5
DEFAULT ECLEVEL IS LIMITED
ECOUNT IS X6 C AT 5

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE

L14 110 SEA FILE=REGISTRY SSS FUL L10 AND L5 AND L8
L19 STR



NODE ATTRIBUTES:

NSPEC IS RC AT 4
NSPEC IS RC AT 6
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DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED
ECOUNT IS X6 C X1 O AT 5

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE

L21 157 SEA FILE=REGISTRY SSS FUL L19 AND L5 AND L8
L22 167 SEA FILE=REGISTRY ABB=ON PLU=ON L14 OR L21
L24 45 SEA FILE=REGISTRY ABB=ON PLU=ON L22 AND 16.138/RID
L27 33 SEA FILE=HCAPLUS ABB=ON PLU=ON L24

=> fil hcap

FILE 'HCAPLUS' ENTERED AT 11:02:27 ON 22 DEC 2005

=> d l27 1-33 ibib abs hitstr hitind

L27 ANSWER 1 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2005:822667 HCAPLUS
 DOCUMENT NUMBER: 143:219454
 TITLE: Chemically amplified photoresists with high sensitivity, resolution, and less scums, silsesquioxane compositions therefor, and method for forming precise patterns therewith
 INVENTOR(S): Hatakeyama, Jun
 PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 102 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005221714	A2	20050818	JP 2004-28994	2004 0205
PRIORITY APPLN. INFO.:			JP 2004-28994	2004 0205

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT
 *

AB The compns. contain (A) organopolysiloxanes prepared by hydrolytic condensation of silane monomers R_1SiX_3 (R_1 = organic group having acid-decomposable group; X = halo, OH, C1-10 alkoxy or acyl) and optionally other silane monomers R_0SiX_3 (R_0 = organic group for tight adhesion; X = same as above) and (B) polymers having repeating units $[R_2C(CO_2R_5)CH_2]$ [R_2 = H, Me, F, CF_3 , CN, $CH_2CO_2R_3$, CH_2OR_4 ; R_3 = C1-4 linear or branched alkyl; R_4 = H, C1-4 linear or branched alkyl or acyl; R_5 = $R_6R_7CCH_2SiR_8R_9R_{10}$, $R_{11}C(CH_2SiR_{12}R_{13}R_{14})_2$, $C(CH_2SiR_{15}R_{16}R_{17})_3$, Q1, Q2; R_6 , R_7 , R_{11} = H, C1-10 linear, branched, or cyclic alkyl; R_8 - R_{10} , R_{12} - R_{17} = C1-10 linear, branched, or cyclic alkyl, C6-10 aryl, trialkylsilyl, Si-containing group bonded with Si in the formula by siloxane or silalkylene linkage; R_{28} - R_{30} = C1-20 linear, branched, or cyclic alkyl; R_{18} , R_{19} , R_{22} , R_{23} , R_{26} , R_{27} , R_{31} , R_{32} , R_{35} , R_{36} , R_{39} - R_{41} = H, C1-20 linear, branched, or cyclic alkyl; R_{20} , R_{21} , R_{24} , R_{25} , R_{33} , R_{34} , R_{37} , R_{38} = H, C1-20 linear, branched, or cyclic alkyl, fluorinated C1-20 alkyl, C6-20 aryl; p , q , r , s = 0-10; $1 \leq p + q + s \leq 20$]. Also claimed are compns. containing A and (C) copolymers of silyl-branched vinyl repeating units and other repeating units having groups whose alkaline solubility can be increased by acids (both Markush given). Alternatively, the compns. contain (R_1SiO_x) (R_1 = same as above; x = 1.0-1.5) instead of A. Also claimed are chemical amplified photoresists containing the above compns., acid generators, organic solvents, and optionally dissoln. inhibitors. Basic compds. may be contained in the

photoresists. In the process, the photoresists are applied on substrates (e.g., semiconductor wafers equipped with photoresist underlayers), heat treated, exposed to high-energy rays or electron beams via photomasks, and developed (after further heat treatment) to give patterns. After the patterns are formed, layers under them may be etched with O plasma or with Br- or Cl-containing halogen gases.

IT 802917-23-3P 862379-21-3P

(silsesquioxane-based chemical amplified photoresists with high sensitivity, resolution, and less scums for forming precise patterns)

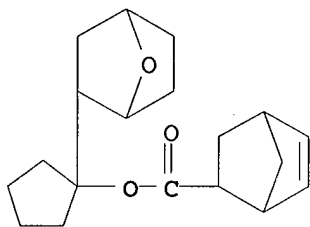
RN 802917-23-3 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester, polymer with 2,5-furandione and heptacyclopentyl[(ethenyldimethylsilyl)oxy]pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane (9CI) (CA INDEX NAME)

CM 1

CRN 676456-74-9

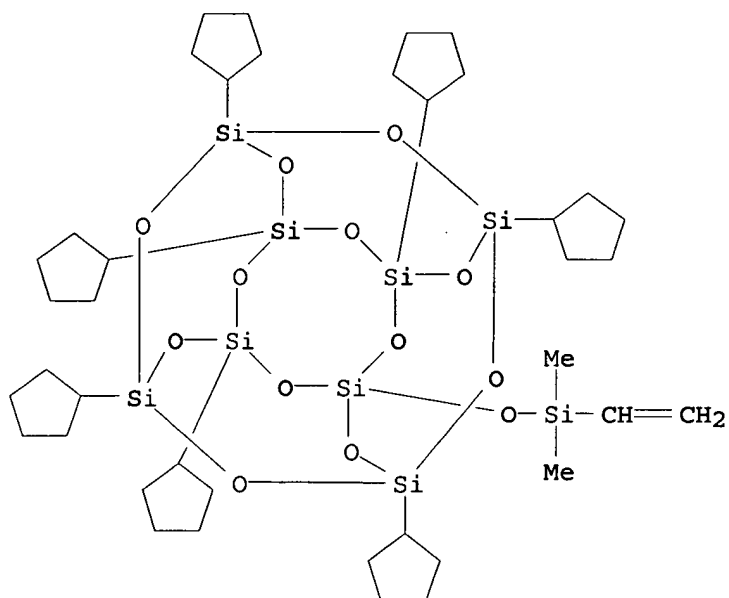
CMF C19 H26 O3



CM 2

CRN 312693-40-6

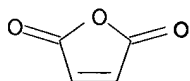
CMF C39 H72 O13 Si9



CM 3

CRN 108-31-6

CMF C4 H2 O3



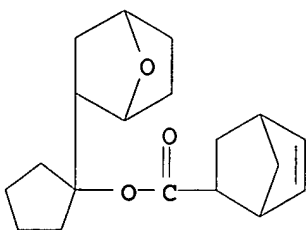
RN 862379-21-3 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester, polymer with ethenylheptamethylcyclotetrasiloxane and 2,5-furandione (9CI) (CA INDEX NAME)

CM 1

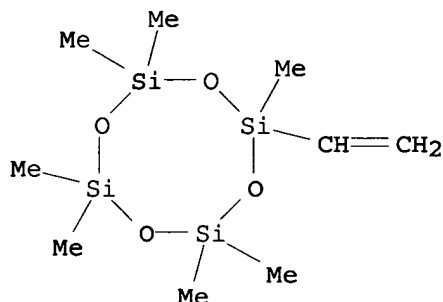
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CMF C19 H26 O3



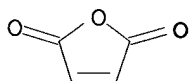
CM 2

CRN 3763-39-1
CMF C9 H24 O4 Si4



CM 3

CRN 108-31-6
CMF C4 H2 O3



IC ICM G03F007-075
ICS C08F030-08; G03F007-039; H01L021-027; C08G077-14
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
Other Reprographic Processes)
Section cross-reference(s): 76
IT 630417-20-8P 800397-92-6P 802917-23-3P 802986-14-7P
819837-18-8P 862379-20-2P 862379-21-3P 862383-75-3P
862383-77-5P
(silsesquioxane-based chemical amplified photoresists with high
sensitivity, resolution, and less scums for forming precise
patterns)

L27 ANSWER 2 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:445341 HCAPLUS

DOCUMENT NUMBER: 142:490394

TITLE: Acrylic polymers for chemically amplified
positive photoresists, and method for pattern
formation using them

INVENTOR(S): Hatakeyama, Jun; Harada, Yuji; Kawai, Yoshio

PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 56 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2005133066

A2

20050526

JP 2004-215907

2004

0723

PRIORITY APPLN. INFO.:

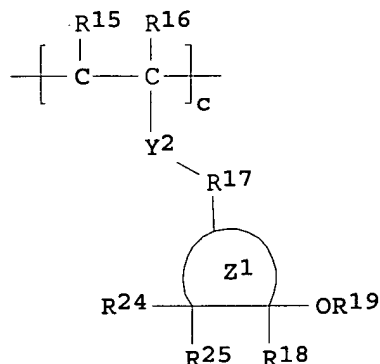
JP 2003-350143

A

2003

1008

GI



I

AB The polymers have repeating units of (A) [CHR2CR1[CO2CR3R4(R5R6)]]a and (B) [CHR8CR9[Y1R10R23R11CR12R13(OR14)]]b and/or I [R1 = H, Me, CH2CO2R7; R2 = H, Me, CO2R7; R3, R4 = C1-10 hydrocarbonyl, R3 and R4 may link together to form an aliphatic hydrocarbon ring with connecting C; R5 = furandiyl, tetrahydrofurandiyl, and oxanorbornanediyl; R6 = H, C1-10 hydrocarbonyl; R7 = H, C1-15 alkyl; R9, R16 = H, Me, CH2CO2R7; R8, R15 = H, Me, CO2R7; R10, R11, R17 = single bond, C1-4 alkylene; R12, R13 = trifluoromethyl, Me, R12 = R13 ≠ Me; R18 = F, trifluoromethyl; R14, R19 = H, acid-labile group; R23 = (O-, S-containing bridged) C4-20 cyclic alkylene; R24, R25 = H, F; Z1 = (O-, S-containing) C4-12 bridged cyclic hydrocarbon group; Y1, Y2 = O, CO2; a = 0.1-0.8; b, c = 0-0.8; (b + c) = 0.05-0.8]. The photoresists show high sensitivity and resolution, and low line edge roughness.

IT 851866-59-6P

(acrylic polymers having specific acid-labile groups for chemical amplified pos. photoresists)

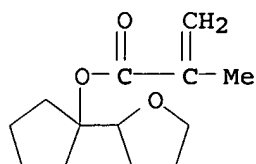
RN 851866-59-6 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl ester, polymer with 1-(tetrahydro-2-furanyl)cyclopentyl 2-methyl-2-propenoate and 5-[3,3,3-trifluoro-2-hydroxy-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 819837-30-4

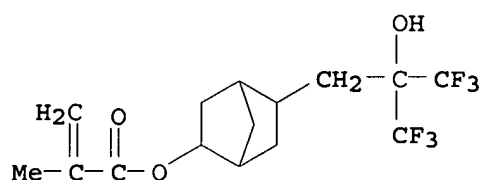
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CM 2

CRN 617711-94-1

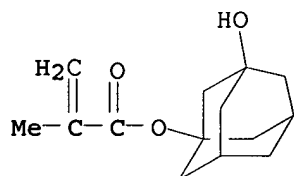
CMF C15 H18 F6 O3



CM 3

CRN 115372-36-6

CMF C14 H20 O3



IC ICM C08F220-18

ICS G03F007-033; G03F007-039; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38

IT 851866-57-4P 851866-58-5P 851866-59-6P 851866-60-9P

851866-61-0P 851866-62-1P 851866-63-2P

(acrylic polymers having specific acid-labile groups for chemical amplified pos. photoresists)

L27 ANSWER 3 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:428605 HCAPLUS

DOCUMENT NUMBER: 142:472603

TITLE: Chemical amplification-type positive resist materials and pattern formation

INVENTOR(S): Hatakeyama, Jun; Kawai, Yoshio

PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 42 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005128146	A2	20050519	JP 2003-361849	2003 1022

PRIORITY APPLN. INFO.:

JP 2003-361849

2003
1022

OTHER SOURCE(S): MARPAT 142:472603

AB The resist materials comprise (A) ≥ 1 base polymers selected from poly(acrylic acids), their derivs., cycloolefin derivative-maleic anhydride alternating copolymers, cycloolefin derivative-maleic anhydride-acrylic acid derivative copolymers, cycloolefin derivative-maleimide alternating copolymers, cycloolefin derivative-maleimide-acrylic acid derivative copolymers, polynorbornenes, and metathesis ring-opening polymers, (B) $R_4[R_3C(OH)R_1R_2]_n$ ($R_1, R_2 = H, F, C1-4$ alkyl, fluorinated alkyl; R_1 and/or $R_2 = F$ -containing group; $R_3 =$ single bond, $C1-4$ alkylene; $R_4 = C4-20$ n-valent cycloalkyl; R_4 may contain OH, ether, ester, CO, lactone group; $n = 1-4$), (C) organic solvents, and (D) acid generators. Patterns are formed by applying the materials on substrates, heating, exposing to high-energy ray or electron beam via photomasks, heating as necessary, and developing. The materials show low line-edge roughness and decreased development residues caused by swelling in development measured by QCM (quartz crystal microbalance) method.

IT 851473-87-5

(chemical amplification-type pos. resists with low swelling in development for fine pattern formation)

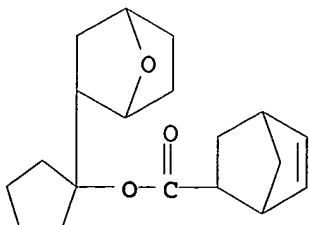
RN 851473-87-5 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, methyl ester, polymer with 2,5-furandione and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl bicyclo[2.2.1]hept-5-ene-2-carboxylate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-74-9

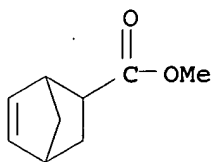
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CM 2

CRN 6203-08-3

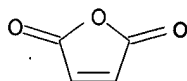
CMF C9 H12 O2



CM 3

CRN 108-31-6

CMF C4 H2 O3



IC ICM G03F007-004

ICS G03F007-039; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 368872-75-7 485819-05-4 485819-08-7 851473-87-5
 (chemical amplification-type pos. resists with low swelling in development for fine pattern formation)

L27 ANSWER 4 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:135758 HCAPLUS

DOCUMENT NUMBER: 142:228725

TITLE: Oxygen plasma-resistant radiation-sensitive resists, their patterning, and macromolecules therefor

INVENTOR(S): Hatakeyama, Jun; Takeda, Takanobu; Watanabe, Osamu

PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 72 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2005042085	A2	20050217	JP 2004-14354	2004 0122
US 2005260521	A1	20051124	US 2004-765919	2004 0129
PRIORITY APPLN. INFO.:			JP 2003-21416	A 2003 0130

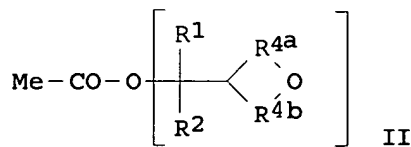
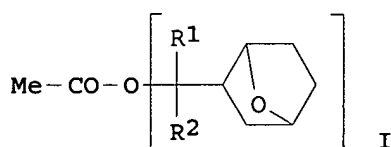
JP 2003-194033

A

2003

0709

GI



AB The macromols. have Si-bearing repeating unit and unit (i) MeCO₂[CR₁R₂(A₁R₃)] [A₁ = (tetrahydro)furandiyl, oxanorbornanediyl; R₁, R₂ = C₁-10 hydrocarbyl; R₃ = H, C₁-10 hydrocarbyl], (ii) I (R'₁, R'₂ = C₁-10 hydrocarbyl), and/or (iii) II [R''₁, R''₂ = C₁-10 hydrocarbyl; C₁-10 hydrocarbyl; R_{4a}, R_{4b} = single bond, C₁-4 alk(ne)ylene within total C number of 3-60]. Pos.-working (chemical-amplified) resists containing the macromols., and their patterning with ≤300-nm high-energy or electron beams are also claimed. The resist patterns are resistant against O plasma and Cl- or Br-containing gas etchants.

IT 843647-82-5P 843647-86-9P 843647-87-0P
843647-88-1P

(photoresists; Si- and prescribed cyclic group-containing polymers for oxygen plasma-resistant pos. photoresists)

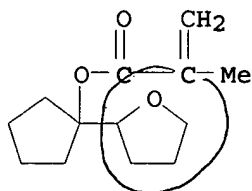
RN 843647-82-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-(tetrahydro-2-furanyl)cyclopentyl ester, polymer with 4-ethenylphenol and 2-[2,2,2-trimethyl-1,1-bis(trimethylsilyl)disilanyl]ethyl 2-methyl-2-propenoate (9CI)
(CA INDEX NAME)

CM 1

CRN 819837-30-4

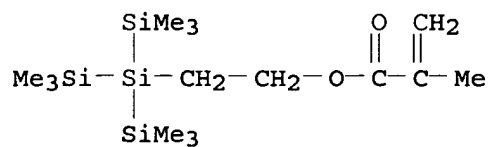
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CM 2

CRN 211369-53-8

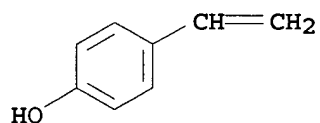
CMF C15 H36 O2 Si4



CM 3

CRN 2628-17-3

CMF C8 H8 O



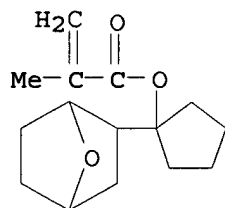
RN 843647-86-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester, polymer with ethenylheptamethylcyclotetrasiloxane and 2,5-furandione (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

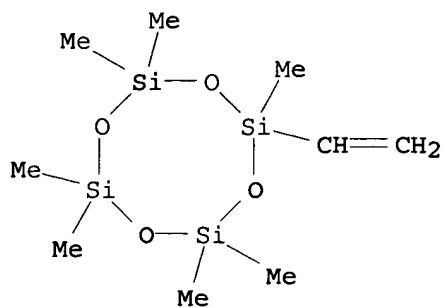
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CM 2

CRN 3763-39-1

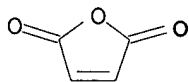
CMF C9 H24 O4 Si4



CM 3

CRN 108-31-6

CMF C4 H2 O3



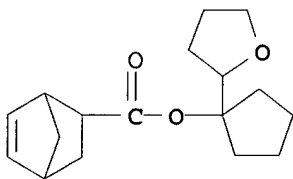
RN 843647-87-0 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-(tetrahydro-2-furanyl)cyclopentyl ester, polymer with ethenylheptamethylcyclotetrasiloxane, 2,5-furandione and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-73-8

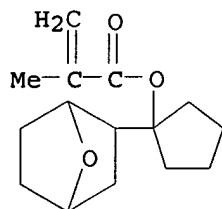
CMF C17 H24 O3



CM 2

CRN 676456-72-7

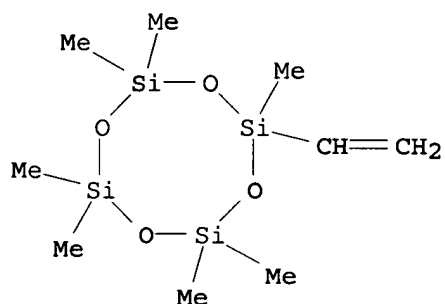
CMF C15 H22 O3



CM 3

CRN 3763-39-1

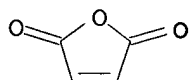
CMF C9 H24 O4 Si4



CM 4

CRN 108-31-6

CMF C4 H2 O3



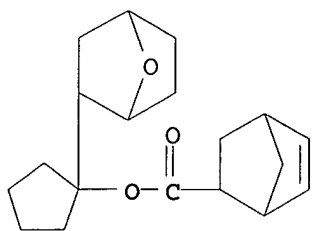
RN 843647-88-1 HCAPLUS

CM Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester, polymer with 2,5-furandione and hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-74-9

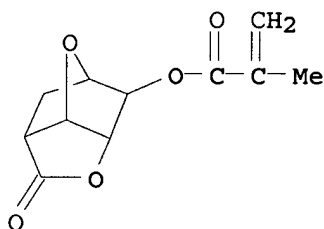
CMF C19 H26 O3



CM 2

CRN 274248-05-4

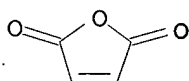
CMF C11 H12 O5



CM 3

CRN 108-31-6

CMF C4 H2 O3



IC ICM C08F230-08

ICS G03F007-039; G03F007-075; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38

IT 843647-82-5P 843647-84-7P 843647-85-8P

843647-86-9P 843647-87-0P 843647-88-1P

843647-89-2P

(photoresists; Si- and prescribed cyclic group-containing polymers for oxygen plasma-resistant pos. photoresists)

L27 ANSWER 5 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:33606 HCAPLUS

DOCUMENT NUMBER: 142:103181

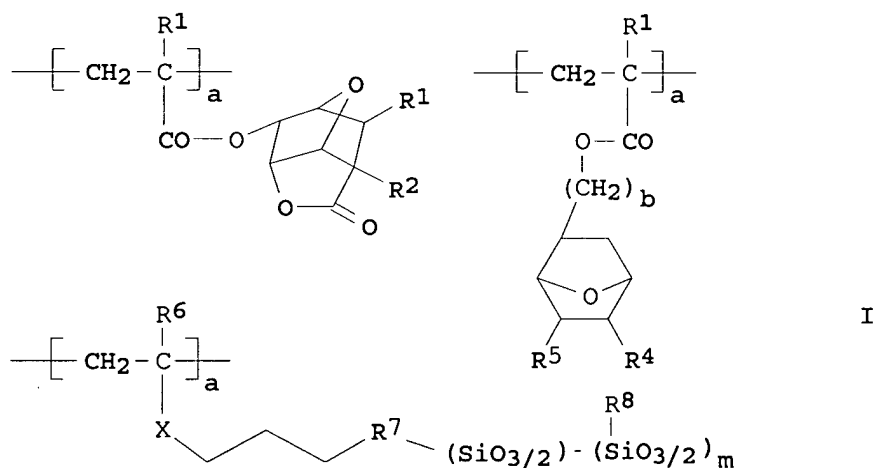
TITLE: Acrylic polymers, their chemically amplified positive photoresists with high resolution and sensitivity and suppressed line edge roughness, and photolithography using them

INVENTOR(S): Hatakeyama, Jun; Watanabe, Takeshi; Takeda, Takanobu

PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 58 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005008765	A2	20050113	JP 2003-174894	2003 0619
PRIORITY APPLN. INFO.:				2003 0619

GI



AB The acrylic polymers contain repeating units I [R1, R6 = H, Me, F, CF3, CN, CH2CO2R12, CH2OR13; R2 = H, Me, CN; R3 = H, ester; R4, R5 = H, ester, lactone-containing group; R8 = H, C1-10 alkyl, fluorinated alkyl; R7 = single bond, (SiR9R10R11)n; R9, R10 = C1-10 alkyl; R11 = single bond, O, C1-4 alkylene; X = ester, ether; a, b ≥ 0; c > 0; 0 < (a + b)/(a + b + c) < 0.8; 0 < c/(a + b + c) < 0.5; m = 4-40; n = 1-20; p = 0-2; R12 = C1-4 alkyl; R13 = H, C1-4 alkyl, C1-4 acyl] and other repeating units that increase alkali solubility of the polymers in the presence of acids. The photolithog. may involve etching with O plasma or halogen gases containing Cl or Br.

IT 819837-31-5P

(acrylic polymers having oxonorbornane and polyhedral oligosilsesquioxane pendants for pos. photoresists with high resolution and suppressed line edge roughness)

RN 819837-31-5 HCAPLUS

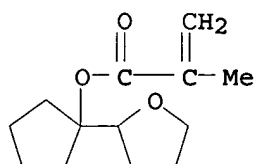
CN 2-Propenoic acid, 2-methyl-, 3-(heptacyclopentylpentacyclo[9.5.1.1.3,9.15,15.17,13]octasiloxanyl)propyl ester, polymer with

hexahydro-5-oxo-2,6-methanofuro[3,2-b]furan-3-yl
2-methyl-2-propenoate and 1-(tetrahydro-2-furanyl)cyclopentyl
2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 819837-30-4

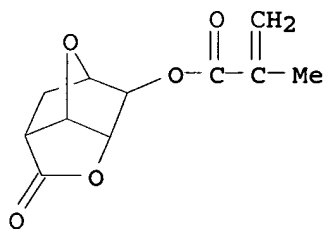
CMF C13 H20 O3



CM 2

CRN 274248-05-4

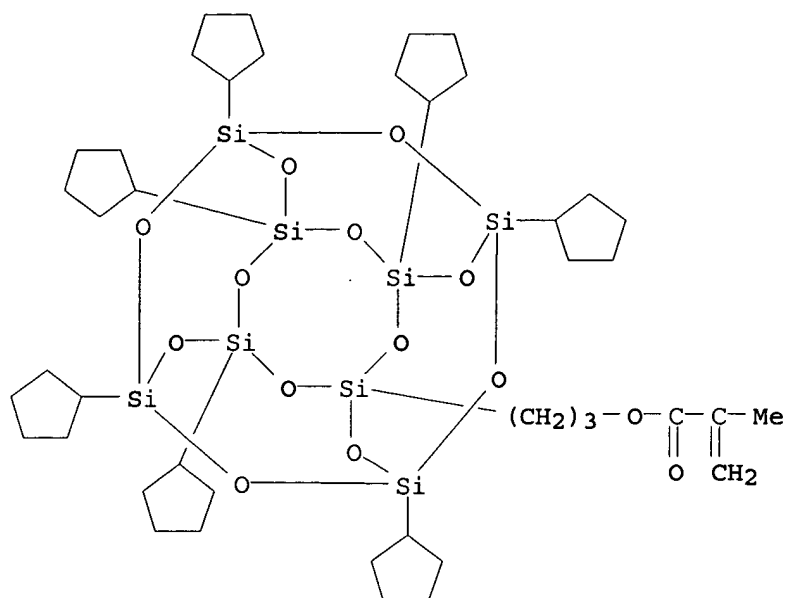
CMF C11 H12 O5



CM 3

CRN 169391-91-7

CMF C42 H74 O14 Si8



IC ICM C08F230-08
 ICS G03F007-039; G03F007-075
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)
 Section cross-reference(s): 38
 IT 819837-18-8P 819837-20-2P 819837-22-4P 819837-23-5P
 819837-25-7P 819837-27-9P 819837-29-1P **819837-31-5P**
 819837-32-6P 819837-34-8P
 (acrylic polymers having oxonorborene and polyhedral
 oligosilsesquioxane pendants for pos. photoresists with high
 resolution and suppressed line edge roughness)

L27 ANSWER 6 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:1036753 HCAPLUS

DOCUMENT NUMBER: 142:30014

TITLE: Silicon-containing polymer, resist composition
 and patterning process

INVENTOR(S): Hatakeyama, Jun; Takeda, Takanobu

PATENT ASSIGNEE(S): Japan

SOURCE: U.S. Pat. Appl. Publ., 38 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004242821	A1	20041202	US 2004-853783	
JP 2004352743	A2	20041216	JP 2003-148656	

2004
0526

2003
0527

PRIORITY APPLN. INFO.:

JP 2003-148656

A

2003
0527

AB Novel silicon-containing polymers are provided comprising recurring units having a POSS pendant and units which improve alkali solubility under the action of an acid. Resist compns. comprising the polymers are sensitive to high-energy radiation and have a high sensitivity and resolution at a wavelength of up to 300 nm and improved resistance to oxygen plasma etching.

IT 802917-23-3P

(silicon-containing polymer, resist composition and patterning process)

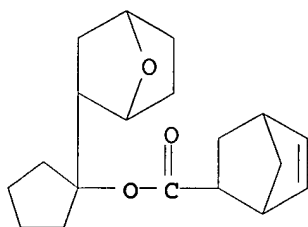
RN 802917-23-3 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester, polymer with 2,5-furandione and heptacyclopentyl[(ethenyldimethylsilyl)oxy]pentacyclo[9.5.1.13,9.15,15.17,13]octasiloxane (9CI) (CA INDEX NAME)

CM 1

CRN 676456-74-9

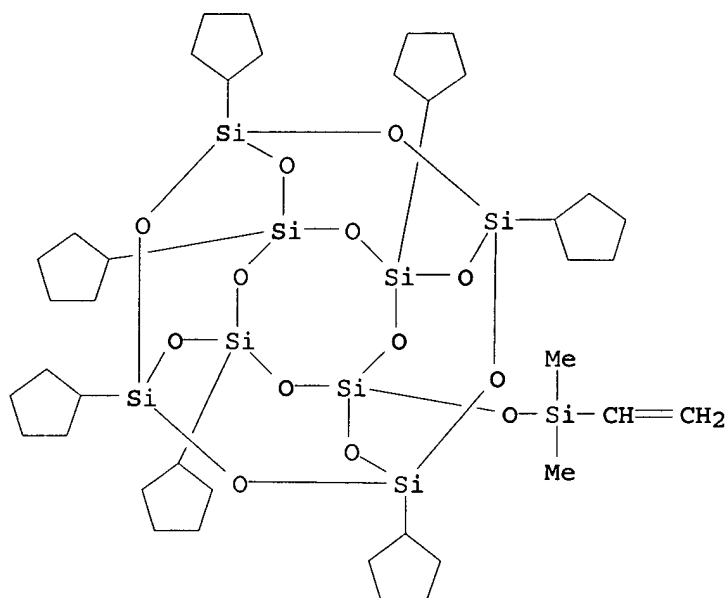
CMF C19 H26 O3



CM 2

CRN 312693-40-6

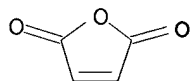
CMF C39 H72 O13 Si9



CM 3

CRN 108-31-6

CMF C4 H2 O3



IC ICM G03F007-004
 ICS C08F122-04; C08F222-04
 INCL 526250000; 430270100; 430322000; 430330000; 526271000; 526279000
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)
 Section cross-reference(s): 38
 IT 802917-18-6P 802917-19-7P 802917-20-0P 802917-21-1P
 802917-22-2P 802917-23-3P 802917-24-4P 802917-25-5P
 (silicon-containing polymer, resist composition and patterning process)

L27 ANSWER 7 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:1012045 HCAPLUS
 DOCUMENT NUMBER: 142:13671
 TITLE: Photosensitive resin composition
 INVENTOR(S): Kanna, Shinichi; Mizutani, Kazuyoshi; Sasaki,
 Tomoya
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Eur. Pat. Appl., 133 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1480079	A2	20041124	EP 2004-19923	2003 0606
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2004012898	A2	20040115	JP 2002-167393	2002 0607
JP 2004029111	A2	20040129	JP 2002-181384	2002 0621
JP 2004029136	A2	20040129	JP 2002-181588	2002 0621
EP 1376232	A1	20040102	EP 2003-12226	2003 0606
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
PRIORITY APPLN. INFO.:			JP 2002-167393	A 2002 0607
			JP 2002-181384	A 2002 0621
			JP 2002-181588	A 2002 0621
			EP 2003-12226	A3 2003 0606

AB The photosensitive resin composition of the present invention exhibits significant transmissibility at the use of an exposure light source of 160 nm or less, more specifically F2 excimer laser light, where line edge roughness and development time dependence are small and a problem of footing formation is improved. The photosensitive resin comprises a resin which decomp. by an action of acid to increase the solubility in alkali developer, in which the resin contains a specific repeat unit; a compound capable of generating an acid upon irradiation with one of an actinic ray and a radiation, in which the compound includes at least two kinds of compds. selected from the group consisting of specific compds (B1), (B2), (B3) and (B4). (B1) is a compound capable of generating aliphatic or aromatic sulfonic acid substituted with at least one fluorine atom upon irradiation with one of an actinic ray and a radiation; (B2) is a compound capable of generating aliphatic or aromatic sulfonic acid containing no fluorine atom upon irradiation with one of an actinic ray and a radiation; (B3) is a compound capable of generating aliphatic or aromatic carboxylic acid substituted with at least one fluorine atom upon irradiation with one of an actinic ray and a radiation; and (B4) is a compound capable of generating aliphatic

or aromatic carboxylic acid containing no fluorine atom. upon irradiation with one of an actinic ray and a radiation.

IT 798556-54-4

(photosensitive resin composition)

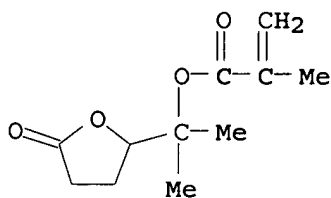
RN 798556-54-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5-oxo-2-furanyl)ethyl ester, polymer with α -(difluoromethyl)-4-ethenyl- α -(trifluoromethyl)benzenemethanol and 1-[1-(4-ethenylphenoxy)-1-methylethyl]tricyclo[3.3.1.1^{3,7}]decane (9CI) (CA INDEX NAME)

CM 1

CRN 798556-53-3

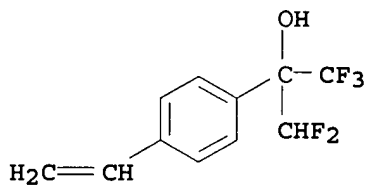
CMF C11 H16 O4



CM 2

CRN 485390-53-2

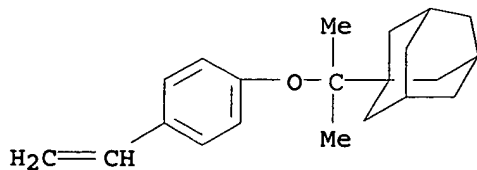
CMF C11 H9 F5 O



CM 3

CRN 430437-25-5

CMF C21 H28 O



IC ICM G03F007-039

ICS G03F007-004

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and

Other Reprographic Processes)

Section cross-reference(s): 38

IT 143336-94-1 367522-49-4 370102-83-3 370866-15-2
 430437-13-1 430437-14-2 430437-15-3 430437-18-6
 430437-19-7 430437-21-1 430437-24-4 430437-27-7
 430437-29-9 430437-33-5 430437-34-6 430437-35-7
 430437-36-8 430437-38-0 430437-39-1 430437-40-4
 485390-41-8 485390-43-0 485390-44-1 485390-45-2
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 518027-87-7 524952-70-3 607710-77-0 637351-57-6
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 798556-85-1 798556-86-2 798556-88-4 798556-90-8
 798556-91-9 798556-92-0 798556-93-1

(photosensitive resin composition)

L27 ANSWER 8 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:261017 HCAPLUS

DOCUMENT NUMBER: 140:311986

TITLE: Ester compounds, polymers, resist compositions
and patterning process

INVENTOR(S): Hasegawa, K.; Kinsho, T.; Watanabe, T.

PATENT ASSIGNEE(S): Shin-Etsu Chemical Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 48 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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EP 1403295	A2	20040331	EP 2003-256075	2003 0926
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EP 1403295 A3 20040414
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
 MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ,
 EE, HU, SK

JP 2004143153	A2	20040520	JP 2003-330904	2003 0924
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US 2004068124	A1	20040408	US 2003-671948	2003 0929
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PRIORITY APPLN. INFO.: JP 2002-285161

A

2002
0930

OTHER SOURCE(S): MARPAT 140:311986

AB The present invention relates to novel ester compds. having
 formula: A1C(=O)OCR1R2A2-R3 (A1 = polymerizable functional group

having a double bond; A2 = furan-diyl, tetrahydrofurandiyl or oxa-norbornane-diyl; R1,2 = monovalent hydrocarbon group, or R1 and R2 may bond together to form an aliphatic hydrocarbon ring with the carbon atom; R3 = hydrogen or a monovalent hydrocarbon group which may contain a hetero atom are polymerizable into polymers). Resist compns. comprising the polymers are sensitive to high-energy radiation, have an improved sensitivity, resolution, and etching resistance, and lend themselves to micropatterning with electron beams or deep-UV rays.

IT 676456-75-0P 676456-77-2P 676456-79-4P
676456-80-7P 676456-81-8P

(ester compds. for polymers and photoresist compns.)

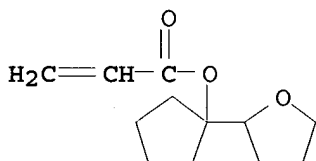
RN 676456-75-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl ester, polymer with 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate and 1-(tetrahydro-2-furanyl)cyclopentyl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-68-1

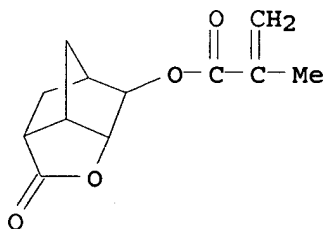
CMF C12 H18 O3



CM 2

CRN 254900-07-7

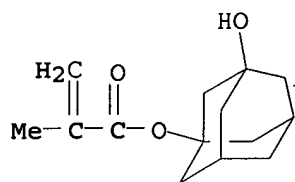
CMF C12 H14 O4



CM 3

CRN 115372-36-6

CMF C14 H20 O3



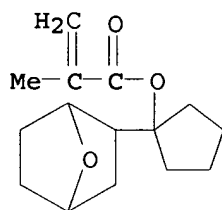
RN 676456-77-2 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-hydroxytricyclo[3.3.1.13,7]dec-1-yl ester, polymer with 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

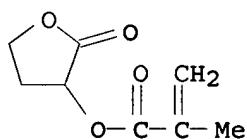
CMF C15 H22 O3



CM 2

CRN 195000-66-9

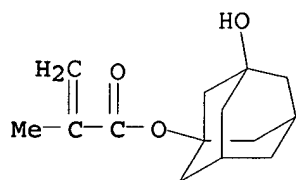
CMF C8 H10 O4



CM 3

CRN 115372-36-6

CMF C14 H20 O3



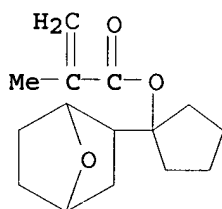
RN 676456-79-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-ethyltricyclo[3.3.1.13,7]dec-2-yl
 ester, polymer with 3-hydroxytricyclo[3.3.1.13,7]dec-1-yl
 2-methyl-2-propenoate, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl
 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl
 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

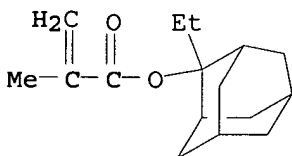
CMF C15 H22 O3



CM 2

CRN 209982-56-9

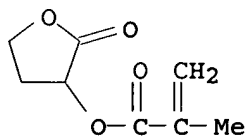
CMF C16 H24 O2



CM 3

CRN 195000-66-9

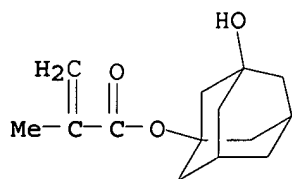
CMF C8 H10 O4



CM 4

CRN 115372-36-6

CMF C14 H20 O3



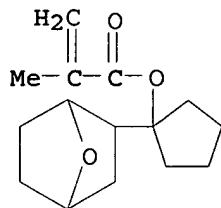
RN 676456-80-7 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, tetrahydro-2-oxo-3-furanyl ester, polymer with 2,5-furandione and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-72-7

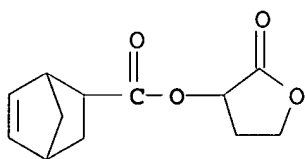
CMF C15 H22 O3



CM 2

CRN 264193-09-1

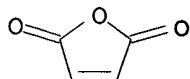
CMF C12 H14 O4



CM 3

CRN 108-31-6

CMF C4 H2 O3



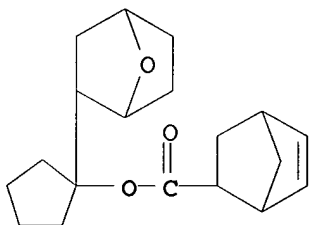
RN 676456-81-8 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl ester, polymer with 2,5-furandione and tetrahydro-2-oxo-3-furanyl bicyclo[2.2.1]hept-5-ene-2-carboxylate (9CI) (CA INDEX NAME)

CM 1

CRN 676456-74-9

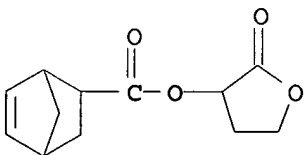
CMF C19 H26 O3



CM 2

CRN 264193-09-1

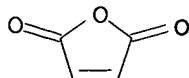
CMF C12 H14 O4



CM 3

CRN 108-31-6

CMF C4 H2 O3



IC ICM C08F020-30
ICS C08F032-08; G03F007-039
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 35, 38
IT 676456-75-0P 676456-76-1P 676456-77-2P
676456-78-3P 676456-79-4P 676456-80-7P
676456-81-8P

(ester compds. for polymers and photoresist compns.)

L27 ANSWER 9 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:77035 HCAPLUS

DOCUMENT NUMBER: 140:136429

TITLE: Positive radiation-sensitive resist compositions with excellent sensitivity, resolution, and adhesion to substrates

INVENTOR(S): Senoo, Masahide; Tamura, Kazutaka; Nio, Hiroyuki

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004029437	A2	20040129	JP 2002-186416	2002 0626

PRIORITY APPLN. INFO.: JP 2002-186416

2002
0626

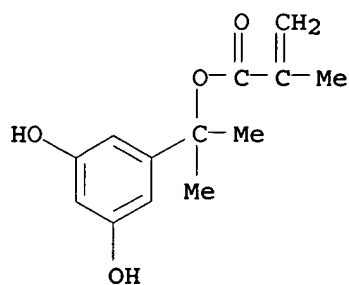
AB The compns., useful for patterning with electron beams or x-ray beams, contain polymers (A) bearing units becoming alkali soluble by acids, lactone units, and phenolic OH groups and photoacid generators (B).

IT 649758-28-1P

(chemical amplified pos. resists with good sensitivity to electron beams or x-ray beams, resolution, and adhesion to substrates)

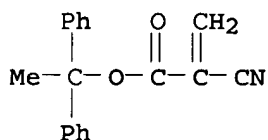
RN 649758-28-1 HCAPLUS

CM 1
CRN 649758-27-0
CMF C13 H16 O4
CN 2-Propenoic acid, 2-cyano-, 1,1-diphenylethyl ester, polymer with 1-(3,5-dihydroxyphenyl)-1-methylethyl 2-methyl-2-propenoate and 1-methyl-1-(tetrahydro-2-oxo-3-furanyl)ethyl 2-propenoate (9CI)
(CA INDEX NAME)



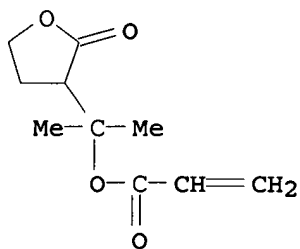
CM 2

CRN 393178-25-1
 CMF C18 H15 N O2



CM 3

CRN 239784-43-1
 CMF C10 H14 O4



IC ICM G03F007-039
 ICS C08F212-14; C08F220-16; C08F220-28; C08F220-30; H01L021-027
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)
 IT 610271-09-5P 649758-26-9P 649758-28-1P 649758-30-5P
 649758-31-6P 649758-32-7P 649758-33-8P
 (chemical amplified pos. resists with good sensitivity to electron
 beams or x-ray beams, resolution, and adhesion to substrates)

L27 ANSWER 10 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:5239 HCAPLUS

DOCUMENT NUMBER: 140:67635

TITLE: Photosensitive resin composition

INVENTOR(S): Kanna, Shinichi; Mizutani, Kazuyoshi; Sasaki, Tomoya

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Eur. Pat. Appl., 136 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1376232	A1	20040102	EP 2003-12226	2003 0606
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2004012898	A2	20040115	JP 2002-167393	2002 0607
JP 2004029111	A2	20040129	JP 2002-181384	2002 0621
JP 2004029136	A2	20040129	JP 2002-181588	2002 0621
US 2004009430	A1	20040115	US 2003-455459	2003 0606
EP 1480079	A2	20041124	EP 2004-19923	2003 0606
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
PRIORITY APPLN. INFO.:			JP 2002-167393	A 2002 0607
			JP 2002-181384	A 2002 0621
			JP 2002-181588	A 2002 0621
			EP 2003-12226	A3 2003 0606

AB The photosensitive resin composition of the present invention is an excellent photosensitive resin composition: exhibiting significant transmissibility at the use of an exposure light source of 160 nm or less, more specifically F2 excimer laser light, where line edge roughness and development time dependence are small and a problem of footing formation is improved; and comprising a resin which decomps. by an action of acid to increase the solubility in alkali developer, in which the resin contains a specific repeat unit; a compound capable of generating an acid upon irradiation with one

of an actinic ray and a radiation.

IT 629648-90-4P

(microlithog. photosensitive resin composition containing)

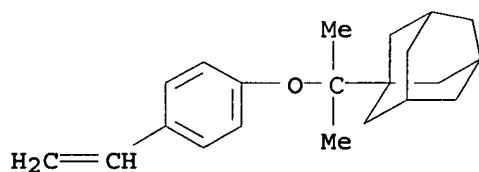
RN 629648-90-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl ester, polymer with 4-ethenyl- α -methyl- α -(trifluoromethyl)benzenemethanol and 1-[1-(4-ethenylphenoxy)-1-methylethyl]tricyclo[3.3.1.1^{3,7}]decane (9CI) (CA INDEX NAME)

CM 1

CRN 430437-25-5

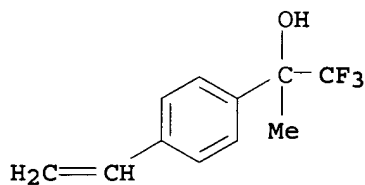
CMF C21 H28 O



CM 2

CRN 397287-76-2

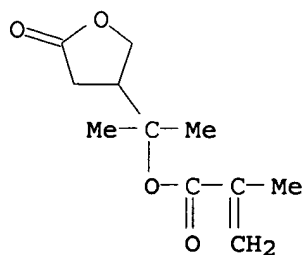
CMF C11 H11 F3 O



CM 3

CRN 280566-59-8

CMF C11 H16 O4



IC ICM G03F007-039

ICS G03F007-004

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and

Other Reprographic Processes)

Section cross-reference(s): 35, 38, 76

IT 367522-49-4P 370102-83-3P 485390-41-8P 485390-42-9P
 485390-43-0P 485390-45-2P 485390-46-3P 485390-47-4P
 485390-49-6P 485390-52-1P 485390-57-6P 485390-58-7P
 485390-62-3P 485390-65-6P 485390-66-7P 485390-68-9P
 485390-69-0P 500212-79-3P 500212-80-6P 518027-87-7P
 629648-90-4P 637351-23-6P 637351-25-8P 637351-26-9P
 637351-27-0P 637351-28-1P 637351-29-2P 637351-30-5P
 637351-31-6P 637351-32-7P 637351-33-8P 637351-35-0P
 637351-36-1P 637351-37-2P 637351-38-3P 637351-39-4P
 637351-40-7P 637351-41-8P 637351-42-9P 637351-43-0P
 637351-44-1P 637351-45-2P 637351-46-3P 637351-47-4P
 637351-48-5P 637351-49-6P 637351-51-0P 637351-53-2P
 637351-55-4P 637351-57-6P 637351-58-7P

(microlithog. photosensitive resin composition containing)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L27 ANSWER 11 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:945845 HCAPLUS

DOCUMENT NUMBER: 140:21261

TITLE: Photosensitive resin composition for
photolithographyINVENTOR(S): Kanna, Shinichi; Mizutani, Kazuyoshi; Sasaki,
Tomoya

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 71 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2003344994	A2	20031203	JP 2002-154391	2002 0528

PRIORITY APPLN. INFO.: JP 2002-154391

2002
0528

AB The composition contains (A) a polymer with repeating unit
 R50R51R52CC(OR40)CR53R54R55 [R50-55 = H, F, (substituted) alkyl;
 ≥ 1 of R50-55 is F or F-substituted alkyl; R40 = H,
 (substituted) (cyclo)alkyl, (substituted) acyl, (substituted)
 alkoxy carbonyl, CR41R42(OR43); R41-42 = H, (substituted)
 (cyclo)alkyl; R43 = (substituted) (cyclo)alkyl, (substituted)
 aralkyl, (substituted) aryl; 2 of R41-43 may bond to form a ring],
 which decomps. by the action of acid and increases its solubility to
 alkali developer, (B) a compound generating acid by irradiation of
 actinic ray, and (C) a solvent having ≥ 1 F in a mol. The
 composition shows good solvent solubility, coatability, improved line edge
 roughness, and without striation, and is useful for photolithog.
 in manufacture of large-scaled integrates, etc.

IT 629648-90-4

(photoresist composition containing acid-decomposable polymer, acid

generator, and F-containing solvent)

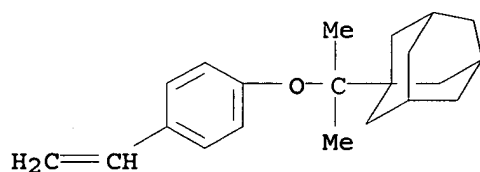
RN 629648-90-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl ester, polymer with 4-ethenyl- α -methyl- α -(trifluoromethyl)benzenemethanol and 1-[1-(4-ethenylphenoxy)-1-methylethyl]tricyclo[3.3.1.1^{3,7}]decane (9CI) (CA INDEX NAME)

CM 1

CRN 430437-25-5

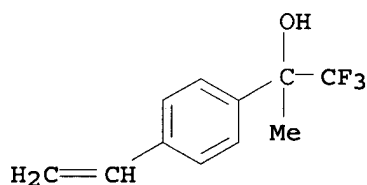
CMF C21 H28 O



CM 2

CRN 397287-76-2

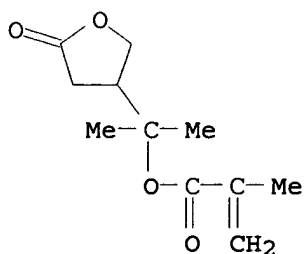
CMF C11 H11 F3 O



CM 3

CRN 280566-59-8

CMF C11 H16 O4



IC ICM G03F007-004

ICS G03F007-039; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38

IT 1511-10-0, Triphenylsulfonium trifluoroacetate 19600-49-8,
 Triphenylsulfonium acetate 143336-94-1 153698-46-5,
 Triphenylsulfonium pentafluorobenzenesulfonate 187082-74-2
 241806-75-7 338445-29-7 365971-70-6 365971-71-7
 367522-49-4 422508-63-2 444617-77-0 444617-78-1
 485390-41-8 485390-44-1 485390-45-2 485390-46-3
 485390-47-4 485390-49-6 485390-52-1 485390-55-4
 485390-58-7 485390-60-1 485390-62-3 485390-63-4
 485390-65-6 500212-80-6 500212-90-8 518027-87-7
 629648-89-1 629648-90-4 629648-92-6 629648-93-7
 629648-94-8 629648-95-9 629648-97-1 629648-99-3
 629649-01-0 629649-02-1 629649-03-2 629649-04-3
 (photoresist composition containing acid-decomposable polymer, acid
 generator, and F-containing solvent)

L27 ANSWER 12 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2003:754897 HCAPLUS
 DOCUMENT NUMBER: 139:252537
 TITLE: Positive resist composition
 INVENTOR(S): Fujimori, Toru
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Eur. Pat. Appl., 89 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
EP 1347335	A1	20030924	EP 2003-6122	2003 0318
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2003270791	A2	20030925	JP 2002-74565	2002 0318
US 2003224287	A1	20031204	US 2003-388408	2003 0317
PRIORITY APPLN. INFO.:			JP 2002-74565	A 2002 0318

AB A pos. photoresist composition used in fabrication of semiconductor devices comprises: (A) a compound capable of generating an acid on exposure to active light rays or a radiation; (B) a resin which is insol. or sparingly soluble in an alkali and becomes alkali-soluble by an action of an acid; and (C) an acyclic compound having at least three groups selected from a hydroxyl group and a substituted hydroxyl group.

IT 431062-22-5P
 (pos. photoresist composition containing)

RN 431062-22-5 HCAPLUS

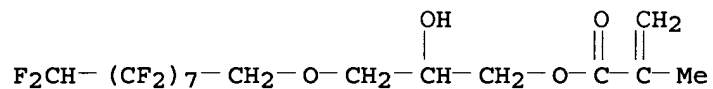
CN 2-Propenoic acid, 2-methyl-, 3-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl)oxy]-2-hydroxypropyl ester, polymer with 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl 2-methyl-2-

propenoate, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl
 2-methyl-2-propenoate and 5(or 6) - [3,3,3-trifluoro-2-[(tetrahydro-
 2H-pyran-2-yl)oxy]-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-
 yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 431062-21-4

CMF C16 H14 F16 O4

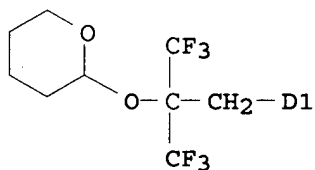
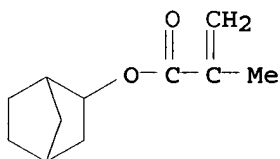


CM 2

CRN 431062-13-4

CMF C20 H26 F6 O4

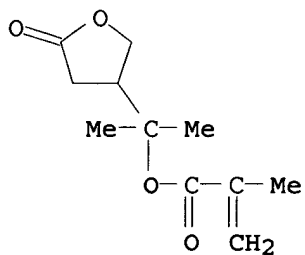
CCI IDS



CM 3

CRN 280566-59-8

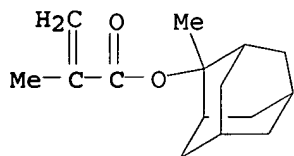
CMF C11 H16 O4



CM 4

CRN 177080-67-0

CMF C15 H22 O2



IC ICM G03F007-039

ICS G03F007-004

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 35, 38

IT 109-92-2DP, Ethyl vinyl ether, reaction product with polyhydroxystyrene 24979-70-2DP, VP15000, reaction product with alkyl vinyl ether 159296-87-4P 200808-68-0P 250378-10-0P, Butyrolactone methacrylate-2-ethyl-2-adamantyl methacrylate copolymer 262617-13-0P 288303-55-9P 325143-38-2P 364736-22-1P 391232-36-3P 398140-43-7P 398140-45-9P 398140-47-1P 398140-50-6P 398140-52-8P 398140-55-1P 398140-57-3P 398140-59-5P 398140-64-2P 398140-69-7P 398140-73-3P 398140-77-7P 398140-78-8P 398140-79-9P 398140-81-3P 398140-88-0P, tert-Butyl norbornenecarboxylate-maleic anhydride-2-methyl-2-adamantyl acrylate-norbornene lactone acrylate copolymer 398140-89-1P 398140-94-8P 398141-00-9P 398141-11-2P 398141-13-4P 398141-14-5P 405509-18-4P 430436-66-1P 430436-67-2P 430436-68-3P 430436-70-7P 430436-72-9P 430436-74-1P 430436-76-3P 430436-78-5P 430436-79-6P 430436-81-0P 430436-82-1P 430436-84-3P 430436-85-4P 430436-86-5P 430436-87-6P 430436-89-8P 430436-90-1P 430436-91-2P 430436-92-3P 430436-94-5P 430436-95-6P 430436-97-8P 430436-98-9P 430436-99-0P 430437-01-7P 430437-03-9P 430437-04-0P 430437-05-1P 430437-09-5P 430437-11-9P 430437-12-0P 430437-13-1P 430437-14-2P 430437-15-3P 430437-17-5P 430437-18-6P 430437-19-7P 430437-21-1P 430437-24-4P 431062-12-3P 431062-14-5P 431062-16-7P 431062-17-8P 431062-18-9P 431062-20-3P 431062-22-5P 462109-80-4P 471257-28-0P 503003-64-3P 597553-03-2P 597553-04-3P

(pos. photoresist composition containing)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L27 ANSWER 13 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:735196 HCAPLUS

DOCUMENT NUMBER: 139:267983

TITLE: Positive-working photoresist composition containing polymer with fluoro-aliphatic group

INVENTOR(S): Fujimori, Toru

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 88 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003262952	A2	20030919	JP 2002-65444	2002 0311
PRIORITY APPLN. INFO.: JP 2002-65444				2002 0311

AB The composition contains (A) a compound generating an acid by irradiation of actinic ray, (B) a resin which decomps. by the action of an acid and whose solubility in alkaline developer increases, and (C) a polymer with fluoro-aliphatic group formed from a monomer $\text{CH}_2:\text{CR}_1\text{COX}(\text{CH}_2)_m(\text{CF}_2\text{CF}_2)_n\text{F}$ ($\text{R}_1 = \text{H, Me; X} = \text{O, S, NR}_2; m = 1-6; n = 2-4; \text{R}_2 = \text{H, C1-4 alkyl}$). Developing defect is prevented and the composition is useful for manufacture of integrated circuits, semiconductor device, and wiring substrates.

IT **431062-22-5P**
 (pos. photoresist composition containing polymer with fluoro-aliphatic group)

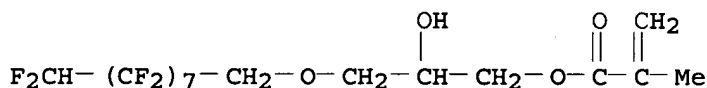
RN 431062-22-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl)oxy]-2-hydroxypropyl ester, polymer with 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl 2-methyl-2-propenoate, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate and 5(or 6)-[3,3,3-trifluoro-2-[(tetrahydro-2H-pyran-2-yl)oxy]-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 431062-21-4

CMF C16 H14 F16 O4

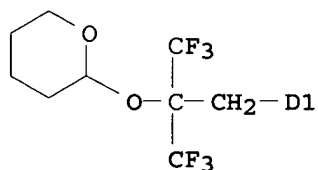
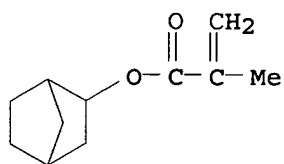


CM 2

CRN 431062-13-4

CMF C20 H26 F6 O4

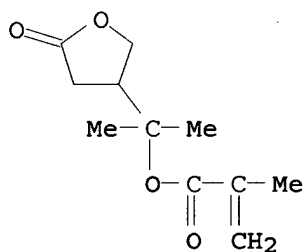
CCI IDS



CM 3

CRN 280566-59-8

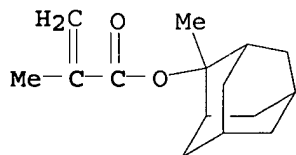
CMF C11 H16 O4



CM 4

CRN 177080-67-0

CMF C15 H22 O2



IC ICM G03F007-004
 ICS C08F020-22; C08F020-38; C08F020-54; C08F020-68; C08F020-70;
 G03F007-033; G03F007-039; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)
 Section cross-reference(s): 38

IT 250378-10-0P, Butyrolactone methacrylate-2-ethyl-2-adamantyl
 methacrylate copolymer 262617-13-0P 328061-11-6P
 350992-58-4P 351197-82-5P 359635-35-1P 364736-22-1P

367283-78-1P	391232-36-3P	398140-38-0P	398140-43-7P
398140-45-9P	398140-57-3P	398140-64-2P	398140-69-7P
398140-79-9P	398140-86-8P	398140-87-9P	398140-88-0P
398140-89-1P	398141-00-9P	398141-11-2P	398141-14-5P
430436-66-1P	430436-67-2P	430436-68-3P	430436-70-7P
430436-72-9P	430436-74-1P	430436-76-3P	430436-78-5P
430436-79-6P	430436-81-0P	430436-82-1P	430436-84-3P
430436-85-4P	430436-86-5P	430436-87-6P	430436-89-8P
430436-90-1P	430436-91-2P	430436-92-3P	430436-94-5P
430436-95-6P	430436-97-8P	430436-98-9P	430436-99-0P
430437-01-7P	430437-03-9P	430437-04-0P	430437-05-1P
430437-07-3P	430437-09-5P	430437-11-9P	430437-12-0P
430437-13-1P	430437-14-2P	430437-15-3P	430437-17-5P
430437-18-6P	430437-19-7P	430437-21-1P	430437-22-2P
430437-24-4P	431062-12-3P	431062-14-5P	431062-16-7P
431062-17-8P	431062-18-9P	431062-20-3P	431062-22-5P
482609-97-2P	503003-64-3P	524699-47-6P	532989-17-6P
601490-00-0P	601490-01-1P	601490-02-2P	601490-03-3P

(pos. photoresist composition containing polymer with fluoro-aliphatic group)

L27 ANSWER 14 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:470377 HCAPLUS

DOCUMENT NUMBER: 139:44224

TITLE: Positive-working resist composition containing specific fluorine group-containing resin

INVENTOR(S): Kanna, Shinichi; Mizutani, Kazuyoshi; Kodama, Kunihiro; Sasaki, Tomoya

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 80 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
EP 1319981	A2	20030618	EP 2002-27667	2002 1212
EP 1319981	A3	20030723		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
US 2003194650	A1	20031016	US 2002-317110	2002 1212
JP 2003241386	A2	20030827	JP 2002-362629	2002 1213
PRIORITY APPLN. INFO.:			JP 2001-380104	A 2001 1213
			JP 2001-380105	A 2001 1213

AB The invention relates to a pos. resist composition comprising (A) a fluorine group-containing resin, which has a structure substituted with a fluorine atom in the main chain and/or side chain of polymer skeleton and a group that is decomposed by the action of an acid to increase solubility in an alkali developer and (B) an acid generator capable of generating an acid upon irradiation of an actinic ray or radiation, and the acid generator of (B) is a compound selected from a sulfonium salt containing no aromatic ring and a compound having a phenacylsulfonium salt structure. The composition is capable of forming a highly precise pattern using a vacuum UV ray of ≤ 160 nm such as F2 excimer laser beam as a light source for exposure.

IT 431062-22-5P

(fluorine group-containing resin)

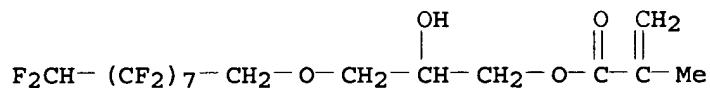
RN 431062-22-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl)oxy]-2-hydroxypropyl ester, polymer with 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl 2-methyl-2-propenoate, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate and 5(or 6)-[3,3,3-trifluoro-2-[(tetrahydro-2H-pyran-2-yl)oxy]-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 431062-21-4

CMF C16 H14 F16 O4

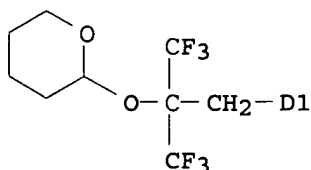
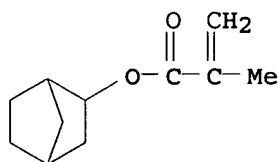


CM 2

CRN 431062-13-4

CMF C20 H26 F6 O4

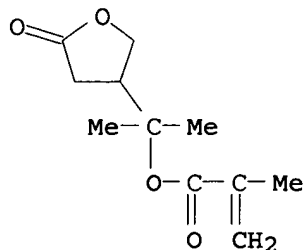
CCI IDS



CM 3

CRN 280566-59-8

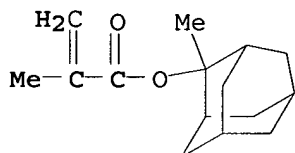
CMF C11 H16 O4



CM 4

CRN 177080-67-0

CMF C15 H22 O2



IC ICM G03F007-004

ICS G03F007-039

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 35

IT	262617-13-0P	430436-66-1P	430436-68-3P	430436-72-9P
	430436-74-1P	430436-76-3P	430436-78-5P	430436-79-6P
	430436-81-0P	430436-84-3P	430436-85-4P	430436-87-6P
	430436-90-1P	430436-92-3P	430436-94-5P	430436-99-0P
	430437-03-9P	430437-07-3P	430437-12-0P	430437-13-1P
	430437-14-2P	430437-15-3P	430437-17-5P	430437-18-6P
	430437-19-7P	430437-21-1P	430437-22-2P	430437-29-9P
	430437-33-5P	430437-35-7P	430437-40-4P	431062-12-3P
	431062-17-8P	431062-22-5P	462109-80-4P	485390-42-9P
	540729-50-8P	540729-51-9P	540729-52-0P	540729-54-2P
	540729-55-3P			

(fluorine group-containing resin)

L27 ANSWER 15 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:371833 HCAPLUS

DOCUMENT NUMBER: 138:376421

TITLE: Chemically amplified positive resists forming defect-free patterns by deep-UV lithography using F2 excimer lasers

INVENTOR(S): Fujimori, Toru; Kanna, Shinichi

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

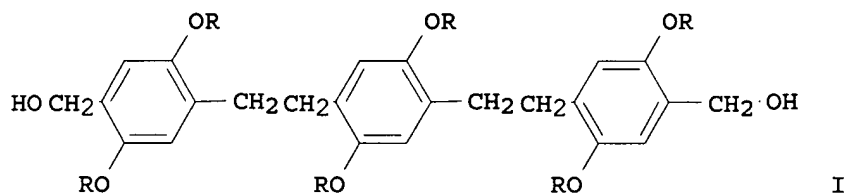
SOURCE: Jpn. Kokai Tokkyo Koho, 55 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003140345	A2	20030514	JP 2001-338103	2001 1102
PRIORITY APPLN. INFO.:				2001 1102

GI



AB The resists comprise acid-labile F-containing resins,
 radiation-sensitive acid generators, and F-containing compds.

IT 431062-22-5

(chemical amplified pos. resists containing F-substituted acid-labile
 polymers and F compds. for deep-UV lithog.)

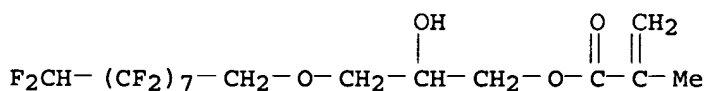
RN 431062-22-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-
 hexadecafluorononyl)oxy]-2-hydroxypropyl ester, polymer with
 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl 2-methyl-2-
 propenoate, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl
 2-methyl-2-propenoate and 5(or 6)-[3,3,3-trifluoro-2-[(tetrahydro-
 2H-pyran-2-yl)oxy]-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-
 yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 431062-21-4

CMF C16 H14 F16 O4

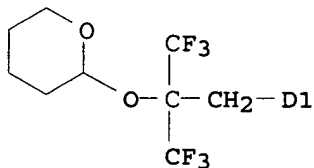
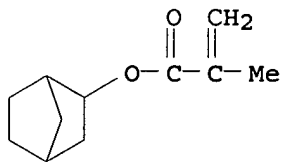


CM 2

CRN 431062-13-4

CMF C20 H26 F6 O4

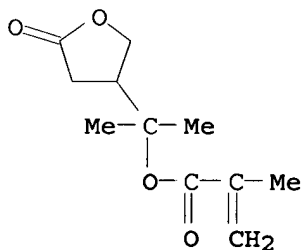
CCI IDS



CM 3

CRN 280566-59-8

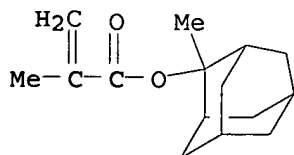
CMF C11 H16 O4



CM 4

CRN 177080-67-0

CMF C15 H22 O2



IC ICM G03F007-039

ICS G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38

IT	430436-67-2	430436-84-3	430436-85-4	430436-89-8
	430436-90-1	431062-14-5	431062-16-7	431062-18-9

431062-20-3 431062-22-5

(chemical amplified pos. resists containing F-substituted acid-labile polymers and F compds. for deep-UV lithog.)

L27 ANSWER 16 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2003:369197 HCAPLUS
 DOCUMENT NUMBER: 138:393073
 TITLE: Positive-working photoresist composition
 containing fluoro-substituted nitrogen
 compound
 INVENTOR(S): Fujimori, Toru; Kanna, Shinichi
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 53 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003140349	A2	20030514	JP 2001-339439	2001 1105
PRIORITY APPLN. INFO.: JP 2001-339439				2001 1105

AB The composition contains (A) a polymer with F-substituted main chain or side chain and becomes soluble in alkaline developer by the decomposition caused by an acid, (B) a compound generating acid by actinic ray or radiation, and (C) a nitrogen compound containing ≥ 1 F atom. The composition gives clear pattern without development defect.

IT 431062-22-5P
 (pos. photoresist containing F-containing alkali-soluble polymer, acid generator, and F-containing nitrogen compound)

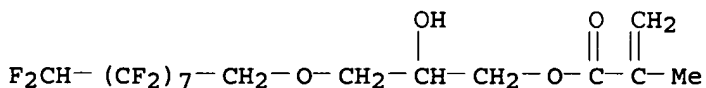
RN 431062-22-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl)oxy]-2-hydroxypropyl ester, polymer with 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl 2-methyl-2-propenoate, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate and 5(or 6)-[3,3,3-trifluoro-2-[(tetrahydro-2H-pyran-2-yl)oxy]-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

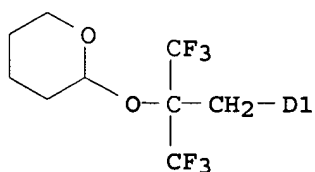
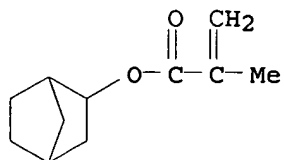
CRN 431062-21-4

CMF C16 H14 F16 O4



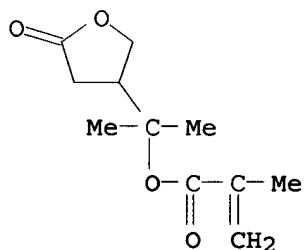
CM 2

CRN 431062-13-4
 CMF C20 H26 F6 O4
 CCI IDS



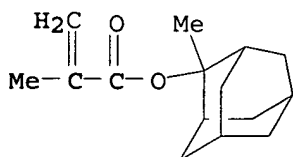
CM 3

CRN 280566-59-8
 CMF C11 H16 O4



CM 4

CRN 177080-67-0
 CMF C15 H22 O2



IC ICM G03F007-039
 ICS C08F012-22; C08F014-26; C08F014-28; C08F016-26; C08F016-38;
 C08F020-22; C08F020-28; C08F020-44; C08F032-04; G03F007-004;
 H01L021-027
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and

Other Reprographic Processes)

Section cross-reference(s): 38

IT	143643-34-9P	262617-13-0P	370866-13-0P	370866-15-2P
	397302-29-3P	430436-67-2P	430436-68-3P	430436-70-7P
	430436-72-9P	430436-74-1P	430436-76-3P	430436-78-5P
	430436-79-6P	430436-81-0P	430436-82-1P	430436-84-3P
	430436-85-4P	430436-86-5P	430436-87-6P	430436-89-8P
	430436-90-1P	430436-92-3P	430436-94-5P	430436-98-9P
	430436-99-0P	430437-01-7P	430437-03-9P	430437-04-0P
	430437-05-1P	430437-09-5P	430437-11-9P	430437-12-0P
	430437-13-1P	430437-17-5P	430437-18-6P	430437-19-7P
	430437-21-1P	430437-22-2P	430437-24-4P	430437-27-7P
	430437-29-9P	430437-33-5P	430437-36-8P	430437-37-9P
	430437-39-1P	430437-40-4P	431062-12-3P	431062-14-5P
	431062-16-7P	431062-17-8P	431062-18-9P	431062-20-3P
	431062-22-5P	487048-93-1P	524952-65-6P	524952-66-7P
	524952-68-9P	524952-69-0P	524952-70-3P	524952-71-4P
	524952-72-5P	524952-73-6P	524952-74-7P	

(pos. photoresist containing F-containing alkali-soluble polymer, acid generator, and F-containing nitrogen compound)

L27 ANSWER 17 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:152372 HCAPLUS

DOCUMENT NUMBER: 138:212786

TITLE: Vacuum UV-sensitive resin composition
containing ionic compound reactive towards
acid

INVENTOR(S): Kanna, Shinichi; Mizutani, Kazuyoshi

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 66 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

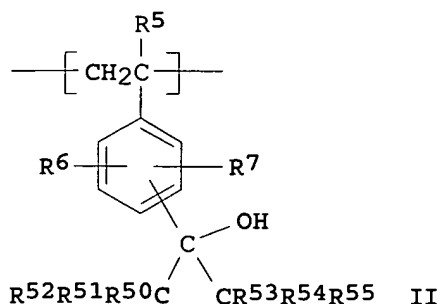
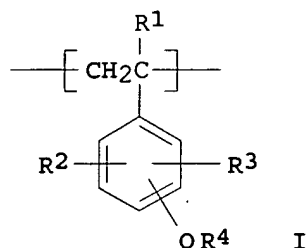
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2003057826	A2	20030228	JP 2001-250535	2001 0821
PRIORITY APPLN. INFO.:				2001 0821
				2001 0821

GI



AB The title composition contains a resin which increases the solubility towards an alkali developer by an acid and has repeating unit I, II, and [CH(R17a)-C(R17)(COOR18)] (R1,5,R17, R17a = H, halo, cyano, alkyl; R2,3,6,7 = H, halo, cyano, hydroxyl, etc.; R50-55 = H, F, alkyl; R4 = -C(R11)(R12)(R13), -C(R14)(R15)(-O-R16); R11-13 = alkyl, cycloalkyl, alkenyl, etc.; R14-15 = H, alkyl; R16 = alkyl, cycloalkyl, aralkyl, aryl; R18 = -C(R18d)(R18e)(R18f), -C(R18d)(R18e)(OR18g); R18d-g = H, alkyl, aralkyl, aryl), an actinic ray- or radiation-sensitive acid generator, ionic compound B+A2- (A2= anionic part; B = cationic part), a solvent, and a surfactant, wherein the acid (AlH) generated by an acid generator and the ionic compound follow the reaction equation: AlH + B+A2--> B+A2- + A2H. The composition shows the good light transmittance towards ≤ 160 nm light and the decreased dependence on the exposure time and provides the resist of the good line edge roughness.

IT 500212-82-8P

(resin; Vacuum UV-sensitive resin composition containing ionic compound reactive towards acid)

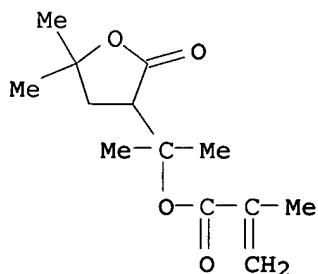
RN 500212-82-8 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5,5-dimethyl-2-oxo-3-furanyl)ethyl ester, polymer with α -(difluoromethyl)-4-ethenyl- α -(trifluoromethyl)benzenemethanol and 1-[1-(4-ethenylphenoxy)-1-methylethyl]tricyclo[3.3.1.1^{3,7}]decane (9CI) (CA INDEX NAME)

CM 1

CRN 500212-81-7

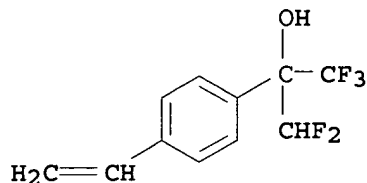
CMF C13 H20 O4



CM 2

CRN 485390-53-2

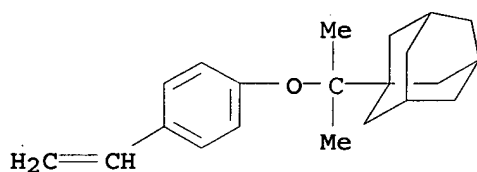
CMF C11 H9 F5 O



CM 3

CRN 430437-25-5

CMF C21 H28 O



IC ICM G03F007-039

ICS C08F212-14; G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 35

IT	485390-41-8P	485390-42-9P	485390-43-0P	485390-45-2P
	485390-46-3P	485390-47-4P	485390-49-6P	485390-52-1P
	485390-55-4P	485390-56-5P	485390-57-6P	485390-58-7P
	485390-60-1P	485390-62-3P	485390-63-4P	485390-64-5P
	485390-65-6P	485390-66-7P	485390-67-8P	485390-69-0P
	485390-70-3P	500212-79-3P	500212-80-6P	500212-82-8P
	500212-84-0P	500212-86-2P	500212-87-3P	500212-88-4P

(resin; Vacuum UV-sensitive resin composition containing ionic compound reactive towards acid)

L27 ANSWER 18 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:56212 HCAPLUS

DOCUMENT NUMBER: 138:115060

TITLE: Cycloalkenyl epoxy compounds, their polymers, positive photoresists containing them with high resolution and good adhesion to substrates, and photolithography using them

INVENTOR(S): Hasegawa, Koji; Kaneo, Takeshi; Watanabe, Takeshi

PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 37 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

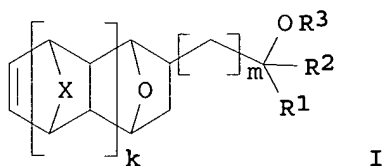
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
JP 2003020313	A2	20030124	JP 2001-207289	2001 0709
US 2003050398	A1	20030313	US 2002-189706	2002 0703
US 2005142491	A1	20050630	US 2005-57008	2005 0211
PRIORITY APPLN. INFO.:			JP 2001-207289	A 2001 0709
			US 2002-189706	A3 2002 0703

OTHER SOURCE(S): MARPAT 138:115060
GI



AB The invention relates to epoxy compds. I (R1, R2 = H, C1-10-alkyl, etc.; R3 = C1-10-alkyl, C1-15-acyl, C1-15-alkoxycarbonyl, etc.; X = CH2, O, S; k = 0, 1; m = 0-5). The photoresists are sensitive to ArF excimer laser beams.

IT **488720-38-3P 488720-40-7P**
(cycloalkenyl epoxide polymers for ArF laser-sensitive high-resolution pos. photoresists with good adhesion to substrates)

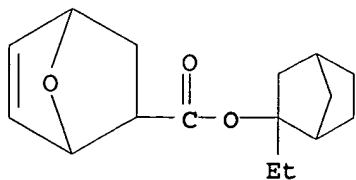
RN 488720-38-3 HCAPLUS

CN 7-Oxabicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 2-ethylbicyclo[2.2.1]hept-2-yl ester, polymer with (α,α -dimethyl-7-oxabicyclo[2.2.1]hept-5-en-2-yl)methyl acetate and 2,5-furandione (9CI) (CA INDEX NAME)

CM 1

CRN 488720-34-9

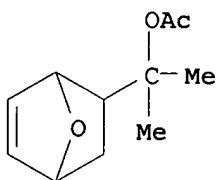
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CM 2

CRN 488720-33-8

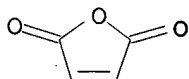
CMF C11 H16 O3



CM 3

CRN 108-31-6

CMF C4 H2 O3



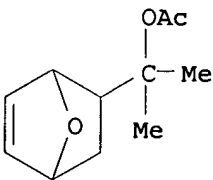
RN 488720-40-7 HCAPLUS

CN 2-Propenoic acid, 2-ethyltricyclo[3.3.1.1^{3,7}]dec-2-yl ester,
polymer with (α,α-dimethyl-7-oxabicyclo[2.2.1]hept-5-
en-2-yl)methyl acetate and 2,5-furandione (9CI) (CA INDEX NAME)

CM 1

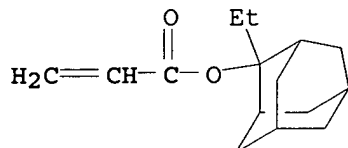
CRN 488720-33-8

CMF C11 H16 O3



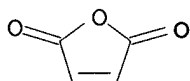
CM 2

CRN 303186-14-3
CMF C15 H22 O2



CM 3

CRN 108-31-6
CMF C4 H2 O3



IC ICM C08F034-00
ICS C08G061-12; G03F007-039
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT 488720-35-0P 488720-36-1P 488720-37-2P **488720-38-3P**
488720-39-4P **488720-40-7P** 488720-41-8P 488720-43-0P
(cycloalkenyl epoxide polymers for ArF laser-sensitive high-resolution pos. photoresists with good adhesion to substrates)

L27 ANSWER 19 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:35187 HCAPLUS

DOCUMENT NUMBER: 138:98199

TITLE: Positive-working vacuum UV-sensitive photoresist material composition containing specific resin

INVENTOR(S): Kanna, Shinichi; Mizutani, Kazuyoshi

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 39 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

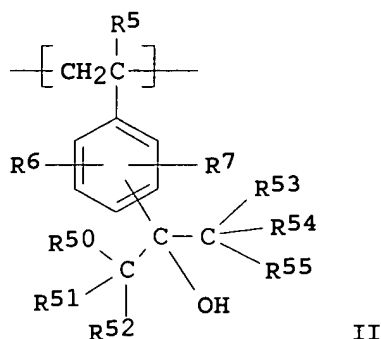
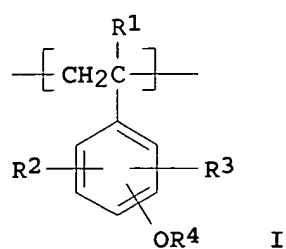
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2003015298	A2	20030115	JP 2001-202241	

2001
0703

PRIORITY APPLN. INFO.: JP 2001-202241

2001
0703

GI



AB The title composition contains a resin increasing solubility toward an alkali solution by an acid, a photoacid generator, and a solvent, wherein the resin contains repeating unit I, II, and
 $[-CH(R_{17a})-C(R_{17})(COOR_{18})-]$ ($R_{1,5,17a,17} = H, \text{halo, cyano, alkyl}$; $R_{2,3,6,7} = H, \text{halo, cyano, hydroxyl, etc.}$; $R_{50-55} = H, F, \text{alkyl}$; $R_4 = -C(R_{11})(R_{12})(R_{13}), -C(R_{14})(R_{15})(-O-R_{16})$; $R_{18} = -C(R_{18d})(R_{18e})(R_{18f}), -C(R_{18d})(R_{18e})-O-(R_{18g})$; $R_{11-13} = \text{alkyl, cycloalkyl, alkenyl, aralkyl, aryl}$; $R_{14-15} = H, \text{alkyl}$; $R_{16} = \text{alkyl, cycloalkyl, aralkyl, aryl}$). The composition provides the good transparency towards vacuum UV and provides the good solubility contrast towards developers.

IT 485390-54-3P

(resin; pos.-working vacuum UV-sensitive photoresist material composition containing specific resin)

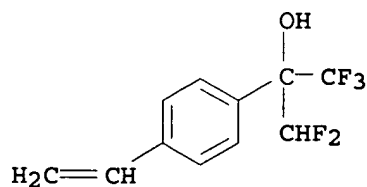
RN 485390-54-3 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl ester, polymer with α -(difluoromethyl)-4-ethenyl- α -(trifluoromethyl)benzenemethanol and 1-[1-(4-ethenylphenoxy)-1-methylethyl]tricyclo[3.3.1.1^{3,7}]decane (9CI) (CA INDEX NAME)

CM 1

CRN 485390-53-2

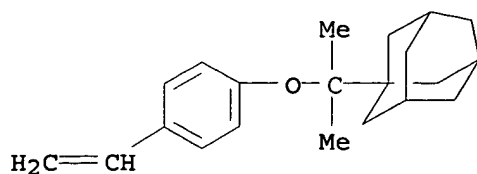
CMF C11 H9 F5 O



CM 2

CRN 430437-25-5

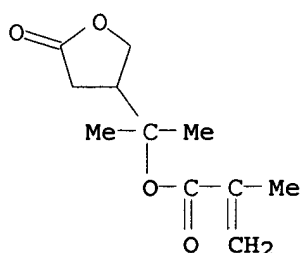
CMF C21 H28 O



CM 3

CRN 280566-59-8

CMF C11 H16 O4



IC ICM G03F007-039

ICS C08F212-14; C08F220-18; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 35

IT 485390-41-8P 485390-42-9P 485390-43-0P 485390-44-1P
 485390-45-2P 485390-46-3P 485390-47-4P 485390-49-6P
 485390-51-0P 485390-52-1P 485390-54-3P 485390-55-4P
 485390-56-5P 485390-57-6P 485390-58-7P 485390-60-1P
 485390-62-3P 485390-63-4P 485390-64-5P 485390-65-6P
 485390-66-7P 485390-67-8P 485390-68-9P 485390-69-0P
 485390-70-3P 485390-72-5P 485390-73-6P 485390-76-9P

(resin; pos.-working vacuum UV-sensitive photoresist material
 composition containing specific resin)

L27 ANSWER 20 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:976089 HCAPLUS

DOCUMENT NUMBER: 138:47317

TITLE: Positive radiation-sensitive resist
 compositions having high sensitivity and high
 resolution and their sub-quarter-micron
 lithography

INVENTOR(S): Nio, Hiroyuki; Tamura, Kazutaka; Senoo,
 Masahide

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.

KIND

DATE

APPLICATION NO.

DATE

JP 2002372785

A2

20021226

JP 2002-103440

2002
0405

PRIORITY APPLN. INFO.:

JP 2001-113820

A

2001
0412

AB The resist compns., useful for patterning with electron beam, contain (a) as acid-labile alkali-developable binders, polymers containing structure units bearing lactone residues and structure units bearing aromatic rings and (b) radiation-sensitive acid generators. Thus, a resist composition comprising 3 g α -methacryloyloxy-pantolactone-2-phenylpropyl methacrylate copolymer (reaction ratio 5.9:4) with Mw 33,000, 300 mg triphenylsulfonium triflate, and Me Cellosolve acetate was spin-coated on a HMDS-treated Si wafer, heated at 100° for 2 min to give a 0.5- μ m thick layer, subjected to patternwise exposure to electron beam, and developed with 2.38% Me4NOH to give 0.20- μ m width patterns (exposure 2.2 μ C/cm²).

IT 478866-28-3P

(pos. electron-beam resist compns. and their sub-quarter-micron lithog.)

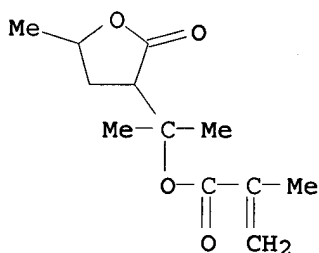
RN 478866-28-3 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-phenylethyl ester, polymer with 1-methyl-1-(tetrahydro-5-methyl-2-oxo-3-furanyl)ethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 478866-27-2

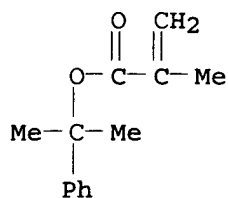
CMF C12 H18 O4



CM 2

CRN 54554-17-5

CMF C13 H16 O2



IC ICM G03F007-039
 ICS C08F020-10; C08F020-42; C08F212-04; C08F214-00; H01L021-027
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 IT 478866-24-9P 478866-25-0P, α -Methacryloyloxy- γ -butyrolactone-p-tetrahydropyranyloxystyrene copolymer
 478866-26-1P **478866-28-3P** 478866-29-4P 478866-30-7P
 478866-31-8P 478866-32-9P, 1,1-Diphenylethyl methacrylate- β -methacryloyloxymevalolactone copolymer
 478866-33-0P, 1,1-Diphenylethyl acrylate- α -methacryloyloxy- γ -butyrolactone copolymer 478866-34-1P, 1,1-Diphenylethyl methacrylate- α -methacryloyloxy- γ -butyrolactone copolymer
 (pos. electron-beam resist compns. and their sub-quarter-micron lithog.)

L27 ANSWER 21 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2002:769998 HCAPLUS
 DOCUMENT NUMBER: 137:302221
 TITLE: Deep-UV positive-working photoresist composition showing improved contact hole resolution and sidelobe suppression
 INVENTOR(S): Sato, Kenichiro
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 77 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002296782	A2	20021009	JP 2001-101521	2001 0330

PRIORITY APPLN. INFO.: JP 2001-101521
 2001 0330

AB The title pos.-working photoresist composition comprises (A) an acid-decomposable resin comprised of an aliphatic cyclic hydrocarbon structural repeating unit and a crosslinking structural repeating unit -OC(R1)(R2)O- [R1, R2 = H, C1-4-alkyl], and (B) a photoacid generator. The photoresist composition is especially suitable for the photolithog. with the 193 nm ArF excimer laser.

IT **469880-24-8P**
 (deep-UV pos.-working photoresist composition showing improved contact hole resolution and side-lobe suppression)

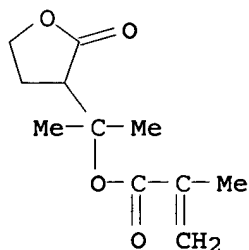
RN 469880-24-8 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl ester, polymer with ethylidenebis(oxy-2,1-ethanediyl) di-2-propenoate, 1-methyl-1-(tetrahydro-2-oxo-3-furanyl)ethyl 2-methyl-2-propenoate and 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI)
(CA INDEX NAME)

CM 1

CRN 469880-23-7

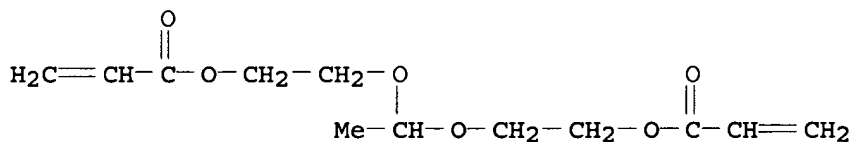
CMF C11 H16 O4



CM 2

CRN 403498-97-5

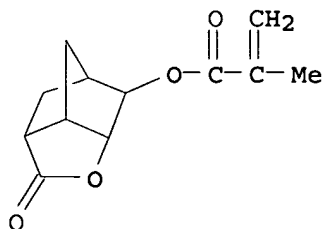
CMF C12 H18 O6



CM 3

CRN 254900-07-7

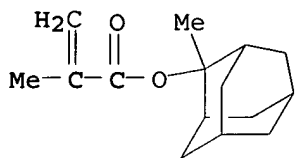
CMF C12 H14 O4



CM 4

CRN 177080-67-0

CMF C15 H22 O2

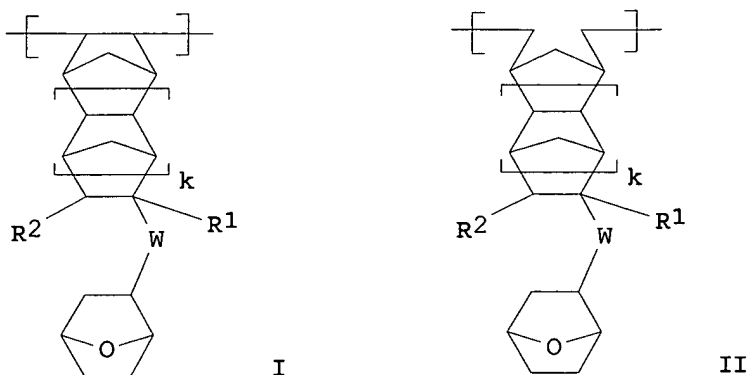


IC ICM G03F007-039
ICS C08K005-00; C08L101-12; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38, 76
IT 469880-22-6P **469880-24-8P** 469880-26-0P 469880-27-1P
469880-29-3P 469880-31-7P 469880-32-8P 469880-34-0P
469880-35-1P 469880-36-2P 469880-38-4P 469880-40-8P
469880-41-9P 469880-42-0P 469880-43-1P 469880-45-3P
469880-47-5P 469880-49-7P 469880-50-0P 469880-51-1P
469880-53-3P
(deep-UV pos.-working photoresist composition showing improved contact hole resolution and side-lobe suppression)

L27 ANSWER 22 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2002:716915 HCAPLUS
DOCUMENT NUMBER: 137:270511
TITLE: Polymers, resist materials, and pattern formation method
INVENTOR(S): Nishi, Tsunehiro; Hasegawa, Koji; Nakashima, Mutsuo
PATENT ASSIGNEE(S): Shin-Etsu Chemical Co., Ltd., Japan
SOURCE: U.S. Pat. Appl. Publ., 37 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002132182	A1	20020919	US 2002-50478	2002 0116
US 6677101	B2	20040113		
TW 550275	B	20030901	TW 2002-91100626	2002 0116
JP 2002303985	A2	20021018	JP 2002-8244	2002 0117
PRIORITY APPLN. INFO.:			JP 2001-8613	A 2001 0117

GI



AB The present invention provides (1) a polymer which has excellent reactivity, rigidity and adhesion to the substrate, and undergoes a low degree of swelling during development, (2) a resist material which uses this polymer as the base resin and hence exhibits much higher resolving power and etching resistance than conventional resist materials, and (3) a pattern formation method using this resist material. Specifically, the present invention provides a novel polymer containing repeating units represented by I, II ($R_1 = H, Me, CH_2CO_2R_3$; $R_2 = H, Me, CO_2R_3$; $R_3 = C_1-15$ alkyl; $W = C_2-20$ divalent hydrocarbon radical, which may have ≥ 1 ester linkage in its structure and may further be substituted by one or more other atomic group containing a heteroatom; $k = 0,1$) and having a weight-average mol. weight of 1,000-500,000, a resist material using the polymer as a base resin, and a pattern formation method using the resist material.

IT 461671-55-6P

(polymers, photoresist materials, and pattern formation method)

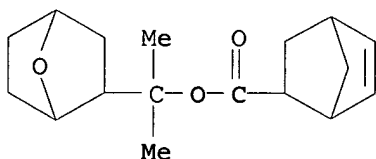
RN 461671-55-6 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 2-ethylbicyclo[2.2.1]hept-2-yl ester, polymer with 2,5-furandione and 1-methyl-1-(7-oxabicyclo[2.2.1]hept-2-yl)ethyl bicyclo[2.2.1]hept-5-ene-2-carboxylate (9CI) (CA INDEX NAME)

CM 1

CRN 461671-54-5

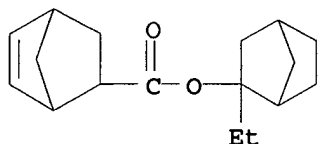
CMF C17 H24 O3



CM 2

CRN 330596-01-5

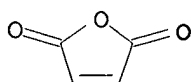
CMF C17 H24 O2



CM 3

CRN 108-31-6

CMF C4 H2 O3



IC ICM G03F007-039

ICS G03F007-38; G03F007-40

INCL 430270100

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 35, 38

IT 461671-53-4P 461671-55-6P 461671-57-8P 461671-59-0P

461671-60-3P 461671-61-4P 461671-62-5P 461671-63-6P

461671-64-7P 461671-65-8P 461671-66-9P 461671-68-1P

(polymers, photoresist materials, and pattern formation method)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L27 ANSWER 23 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:575607 HCAPLUS

DOCUMENT NUMBER: 137:132115

TITLE: Polymer, resist composition and patterning process

INVENTOR(S): Nishi, Tsunehiro; Nakashima, Mutsuo; Kobayashi, Tomohiro

PATENT ASSIGNEE(S): Shin-Etsu Chemical Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 35 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 2002102493	A1	20020801	US 2001-221	2001 1204
US 6670094	B2	20031230		
JP 2002234913	A2	20020823	JP 2001-363803	2001 1129

TW 527523

B

20030411

TW 2001-90129860

2001

1203

PRIORITY APPLN. INFO.:

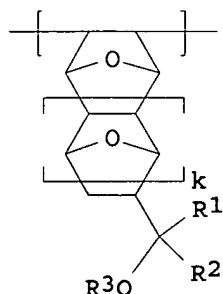
JP 2000-368672

A

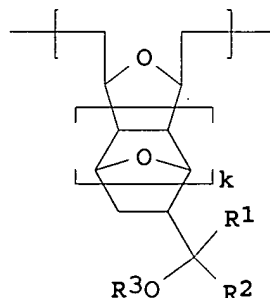
2000

1204

GI



I



II

AB The present invention relates to a polymer comprising recurring units of I, II ($R_{1,2} = H$, C1-15 alkyl, $R_{1,2}$ taken together, may form a ring; $R_3 = H$, C1-15 alkyl, acyl or alkylsulfonyl or C2-15 alkoxy carbonyl or alkoxyalkyl which may have halogen substituents; not all R_{1-3} are hydrogen; $k = 0$ or 1) and having a Mw of 1,000-500,000.. The present invention relates to a photoresist composition comprising the polymer as a base resin which is sensitive to high-energy radiation, has excellent sensitivity, resolution, etching resistance, and minimized swell and lends itself to micropatterning with electron beams or deep-UV.

IT 444045-74-3P

(polymer photoresist composition for patterning process)

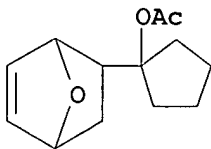
RN 444045-74-3 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 2-ethylbicyclo[2.2.1]hept-2-yl ester, polymer with 2,5-furandione and 1-(7-oxabicyclo[2.2.1]hept-5-en-2-yl)cyclopentyl acetate (9CI)
(CA INDEX NAME)

CM 1

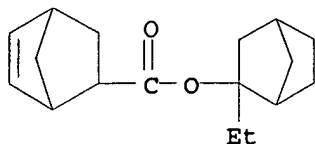
CRN 444045-73-2

CMF C13 H18 O3



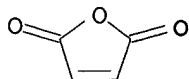
CM 2

CRN 330596-01-5
CMF C17 H24 O2



CM 3

CRN 108-31-6
CMF C4 H2 O3



IC ICM G03F007-038
ICS G03F007-38; G03F007-40; G03F007-30
INCL 430270100
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 35, 38
IT 444045-74-3P 444045-76-5P 444045-78-7P 444105-77-5P
444105-79-7P 444105-81-1P 444105-83-3P 444105-85-5P
(polymer photoresist composition for patterning process)

L27 ANSWER 24 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2002:407174 HCAPLUS
DOCUMENT NUMBER: 136:409030
TITLE: Radiation-sensitive chemically amplified positive resists and lithography using the same
INVENTOR(S): Nio, Hiroyuki; Tamura, Kazutaka; Senoo, Masahide
PATENT ASSIGNEE(S): Toray Industries, Inc., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002156760	A2	20020531	JP 2000-352488	2000 1120
PRIORITY APPLN. INFO.:				2000 1120

AB The resists, showing good sensitivity and high pattern resolution,

contain (a) compds. or acrylate polymers (Markush given) having carboxyls which are protected with ≥ 3 -aromatic-ring-bearing acid-leaving protective groups and (b) radiation-sensitive acid generators.

IT 431943-52-1

(chemical amplified pos. resists containing polymers bearing acid-leaving bulky protective groups for electron beam lithog.)

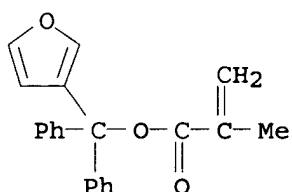
RN 431943-52-1 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-furanyldiphenylmethyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 431943-51-0

CMF C21 H18 O3



IC ICM G03F007-039

ICS C08K005-00; C08L033-04; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38, 76

IT 383908-19-8 383908-20-1 383908-22-3 431943-52-1

(chemical amplified pos. resists containing polymers bearing acid-leaving bulky protective groups for electron beam lithog.)

L27 ANSWER 25 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:392162 HCAPLUS

DOCUMENT NUMBER: 136:409022

TITLE: Positive resist composition

INVENTOR(S): Aoai, Toshiaki; Yasunami, Shoichiro; Mizutani, Kazuyoshi; Kanna, Shinichi

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 56 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002061464	A1	20020523	US 2001-961281	2001 0925
US 6852467	B2	20050208		
JP 2002333715	A2	20021122	JP 2001-202298	2001 0703
TW 528931	B	20030421	TW 2001-90123599	

PRIORITY APPLN. INFO.:	JP 2000-292537	A	2001 0925
			2000 0926
	JP 2000-379284	A	2000 1213
	JP 2001-62158	A	2001 0306
	JP 2001-202298	A	2001 0703

AB The present invention relates to a pos. resist composition comprising:
 (A) a fluorine group-containing resin having at least one fluorine atom on at least one of the main chain and the side chain of the polymer skeleton; and having a group capable of decomposing under the action of an acid to increase the solubility in an alkali developer;
 (B) a compound capable of generating an acid upon irradiation with one of actinic ray and radiation; and (C) a surfactant containing at least one of a silicon atom and a fluorine atom. The present invention provides a pos. photoresist composition suitable for use in the microlithog. process in the production of VLSI or high-capacity microchip, or in other photo-fabrication processes. The invention pos. photoresist composition is capable of forming a highly definite pattern using a vacuum UV ray of < 160 nm.

IT 431062-22-5P

(fluorine group-containing resin for pos. resist composition)

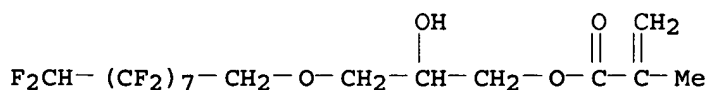
RN 431062-22-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl)oxy]-2-hydroxypropyl ester, polymer with 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl 2-methyl-2-propenoate, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate and 5(or 6)-[3,3,3-trifluoro-2-[(tetrahydro-2H-pyran-2-yl)oxy]-2-(trifluoromethyl)propyl]bicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 431062-21-4

CMF C16 H14 F16 O4

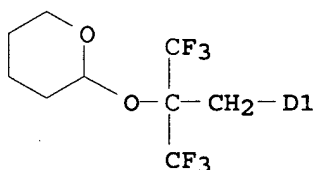
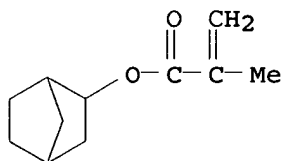


CM 2

CRN 431062-13-4

CMF C20 H26 F6 O4

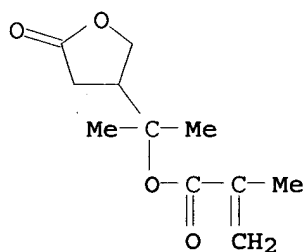
CCI IDS



CM 3

CRN 280566-59-8

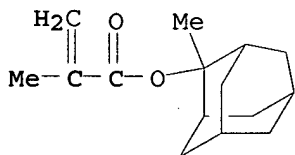
CMF C11 H16 O4



CM 4

CRN 177080-67-0

CMF C15 H22 O2



IC ICM G03F007-004

INCL 430270100

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 35, 38, 76

IT	262617-13-0P	430436-66-1P	430436-67-2P	430436-68-3P
	430436-70-7P	430436-72-9P	430436-74-1P	430436-76-3P
	430436-78-5P	430436-79-6P	430436-81-0P	430436-82-1P
	430436-84-3P	430436-85-4P	430436-86-5P	430436-87-6P

430436-89-8P	430436-90-1P	430436-91-2P	430436-92-3P
430436-94-5P	430436-95-6P	430436-97-8P	430436-98-9P
430436-99-0P	430437-01-7P	430437-03-9P	430437-04-0P
430437-05-1P	430437-07-3P	430437-09-5P	430437-11-9P
430437-12-0P	430437-13-1P	430437-14-2P	430437-15-3P
430437-17-5P	430437-18-6P	430437-19-7P	430437-21-1P
430437-22-2P	430437-24-4P	430437-26-6P	430437-27-7P
430437-29-9P	430437-30-2P	430437-32-4P	430437-33-5P
430437-34-6P	430437-35-7P	430437-36-8P	430437-37-9P
430437-38-0P	430437-39-1P	430437-40-4P	430437-42-6P
430437-44-8P	430437-46-0P	431062-12-3P	431062-14-5P
431062-16-7P	431062-17-8P	431062-18-9P	431062-20-3P
431062-22-5P	431062-24-7P	431062-25-8P	

(fluorine group-containing resin for pos. resist composition)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L27 ANSWER 26 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:935894 HCAPLUS

DOCUMENT NUMBER: 136:77253

TITLE: Positive type radiation-sensitive composition
and process for producing pattern with the
same

INVENTOR(S): Niwa, Hiroyuki; Tamura, Kazutaka; Senoo,
Masahide

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan

SOURCE: PCT Int. Appl., 57 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
WO 2001098833	A1	20011227	WO 2001-JP315	2001 0119
W: KR, SG, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
JP 2002006497	A2	20020109	JP 2000-192298	2000 0627
EP 1229390	A1	20020807	EP 2001-901436	2001 0119
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
JP 2002082439	A2	20020322	JP 2001-176871	2001 0612
US 2003003392	A1	20030102	US 2002-69136	2002 0222
US 6919157	B2	20050719		
PRIORITY APPLN. INFO.:			JP 2000-187335	A 2000

0622

JP 2000-192298

A

2000
0627

WO 2001-JP315

W

2001
0119

AB The invention relates to a pos. type radiation-sensitive composition comprising (A) a compound in which an alkali-soluble group comprising a carboxyl group or phenolic hydroxyl group has been protected by an acid-eliminable group (a) which is any of the following (a1) to (a3), and (B) an acid generator which generates an acid upon irradiation with a radiation; and a method of forming a resist pattern using the composition (a1) The acid-eliminable group (a) is -CR₃, provided that at least two of the R's are aromatic rings. (The alkali-soluble group is a carboxyl group.). (a2) The acid-eliminable group (a) is -CR₃, provided that at least one of the R's is an aromatic ring having an electron-donating group. (a3) The acid-eliminable group (a) has an alkali-soluble group (a') or has an alkali-soluble group (a'') protected by an acid-eliminable group.

IT 383908-16-5

(pos. type radiation-sensitive composition and process for producing pattern with the same)

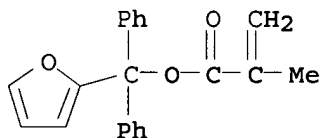
RN 383908-16-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-furanyldiphenylmethyl ester, polymer with 4-(1-methylethenyl)phenol (9CI) (CA INDEX NAME)

CM 1

CRN 383908-15-4

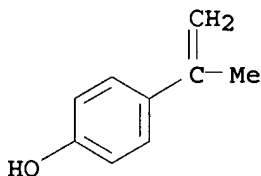
CMF C21 H18 O3



CM 2

CRN 4286-23-1

CMF C9 H10 O



IC ICM G03F007-039

ICS C08F020-12; C08F020-26; C08F012-24; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38, 76

IT 383908-05-2 383908-11-0 383908-14-3 **383908-16-5**
 383908-19-8 383908-20-1 383908-22-3 383908-23-4
 383908-25-6 383908-27-8 383908-29-0 383908-31-4
 383908-33-6 383908-35-8 383908-37-0 383908-39-2
 383908-41-6 383908-43-8 383908-45-0 383908-48-3
 383908-50-7 383908-52-9 383908-54-1 383908-56-3
 383908-57-4 383908-59-6 383908-61-0 383908-83-6
 383908-84-7

(pos. type radiation-sensitive composition and process for producing pattern with the same)

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L27 ANSWER 27 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:635653 HCAPLUS

DOCUMENT NUMBER: 135:218724

TITLE: Positive-working photoresist composition
 containing allylsilane-based resin

INVENTOR(S): Sato, Kenichiro

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 63 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

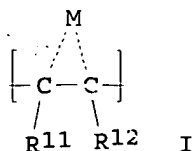
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
JP 2001235865	A2	20010831	JP 2000-46129	2000 0223
TW 513621	B	20021211	TW 2001-90102179	2001 0202
US 2001041303	A1	20011115	US 2001-789823	2001 0222
US 6528229	B2	20030304		
PRIORITY APPLN. INFO.:			JP 2000-46129	A 2000 0223

GI



AB The photoresist composition comprises (A) a resin having repeating unit $\text{CH}_2\text{CH}(\text{CH}_2)_n\text{SiR}_1\text{R}_2\text{R}_3$ ($\text{R}_1\text{-R}_3$ = alkyl, haloalkyl, halo, alkoxy, trialkylsilyl, or trialkylsilyloxy; n = 0 or 1) and I (M = bond for linking 2 C atoms and forming an alicyclic structure which may have a substituent; R_{11} and R_{12} = H, cyano, halo, or (substituted) alkyl) and (B) a compound for generating an acid by irradiation of actinic ray or radiation. The composition provides resist pattern having minimized line width variation by SEM observation in semiconductor device fabrication.

IT 357400-47-6

(pos.-working photoresist composition containing allylsilane-based acid-decomposable resin)

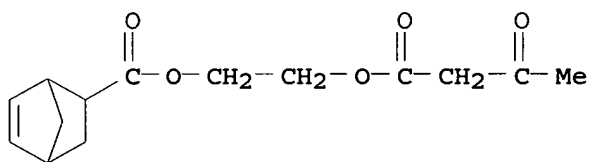
RN 357400-47-6 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 2-(1,3-dioxobutoxy)ethyl ester, polymer with 2,5-furandione, 1,1,1,3,3,3-hexamethyl-2-(2-propenyl)-2-(trimethylsilyl)trisilane and 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl bicyclo[2.2.1]hept-5-ene-2-carboxylate (9CI) (CA INDEX NAME).

CM 1

CRN 357400-46-5

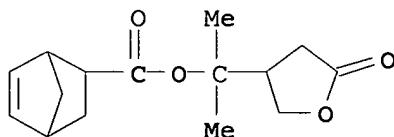
CMF C14 H18 O5



CM 2

CRN 357400-45-4

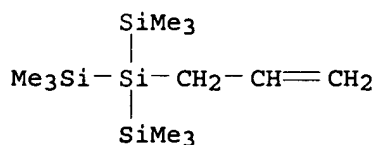
CMF C15 H20 O4



CM 3

CRN 136649-77-9

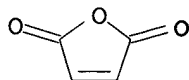
CMF C12 H32 Si4



CM 4

CRN 108-31-6

CMF C4 H2 O3



IC ICM G03F007-039
 ICS C08F222-00; C08F222-06; C08F230-08; C08F232-08; C08K005-00;
 C08L035-00; C08L035-02; C08L043-04; C08L045-00; H01L021-027
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)
 Section cross-reference(s): 76
 IT 357400-36-3 357400-38-5 357400-39-6 357400-40-9
 357400-41-0 357400-42-1 357400-44-3 357400-47-6
 (pos.-working photoresist composition containing allylsilane-based
 acid-decomposable resin)

L27 ANSWER 28 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:421123 HCAPLUS

DOCUMENT NUMBER: 135:38890

TITLE: Polymer having silacycloalkane group,
 photoresist material using the polymer, and
 patterning of the photoresist

INVENTOR(S): Hatakeyama, Jun; Kaneo, Takeshi; Nakajima,
 Atsuo; Hasegawa, Koji

PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 33 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

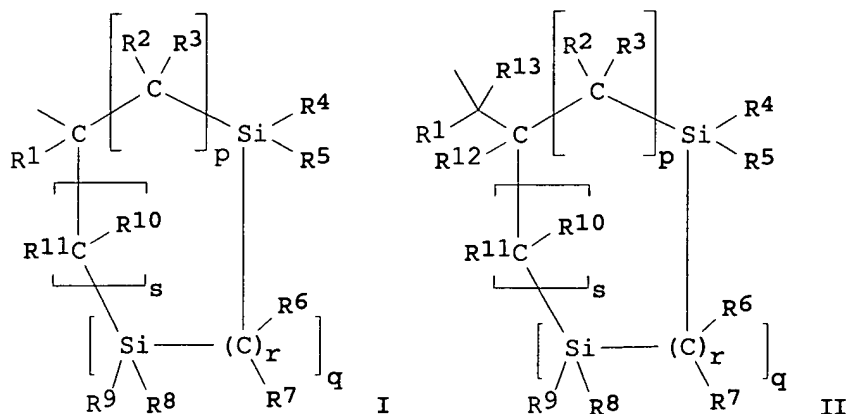
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001158808	A2	20010612	JP 1999-342380	1999 1201
US 2001003772	A1	20010614	US 2000-726592	2000 1201
US 6492089	B2	20021210		
TW 554246	B	20030921	TW 2000-89125640	2000 1201
PRIORITY APPLN. INFO.:			JP 1999-342380	A 1999 1201

GI



AB The polymer involves the cyclic Si-containing group I or II (R1-R3, R6, R7, R10-R13 = H, C1-20 linear, branched, or cyclic alkyl; R4, R5, R8, R9 = H, C1-20 linear, branched, or cyclic alkyl, fluorinated C1-20 alkyl, C6-20 aryl; p, q, r, s = 0-10; $1 \leq p + q + s \leq 20$). The chemical-amplified pos.-working photoresist contains the polymer, an acid-generating agent, and organic solvent optionally associated with a dissoln. inhibitor substituted with acid-unstable group. The photoresist material is applied on a substrate, baked, irradiated with radiation through a photomask, optionally baked, developed by an aqueous alkali, and subjected to O plasma etching to form a precise pattern with perpendicular profile, which is suitable for ultralarge scale integrated circuit, etc.

IT 344328-37-6P

(chemical amplified pos.-working photoresist containing polymer substituted with cyclic silicon-containing group)

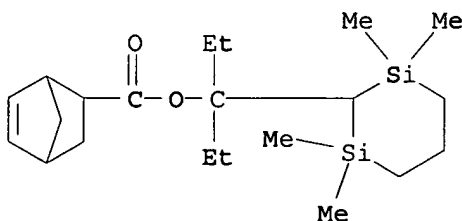
RN 344328-37-6 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 1-ethyl-1-(1,1,3,3-tetramethyl-1,3-disilacyclohex-2-yl)propyl ester, polymer with 2,5-furandione (9CI) (CA INDEX NAME)

CM 1

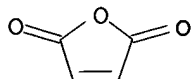
CRN 344328-36-5

CMF C21 H38 O2 Si2



CM 2

CRN 108-31-6
CMF C4 H2 O3



IC ICM C08F030-08
ICS G03F007-039; G03F007-075
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
Other Reprographic Processes)
Section cross-reference(s): 38, 76
IT 344327-81-7P 344327-83-9P 344327-85-1P 344327-87-3P
344327-89-5P 344327-91-9P 344327-93-1P 344327-95-3P
344327-97-5P 344327-99-7P 344328-01-4P 344328-03-6P
344328-05-8P 344328-07-0P 344328-09-2P 344328-11-6P
344328-13-8P 344328-15-0P 344328-17-2P 344328-19-4P
344328-21-8P 344328-23-0P 344328-25-2P 344328-27-4P
344328-29-6P 344328-31-0P 344328-33-2P 344328-35-4P
344328-37-6P
(chemical amplified pos.-working photoresist containing polymer
substituted with cyclic silicon-containing group)

L27 ANSWER 29 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:98663 HCAPLUS
DOCUMENT NUMBER: 134:170820
TITLE: Positive-working silicone-containing
photosensitive compositions
INVENTOR(S): Yasunami, Shoichiro
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 19 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2001033974	A2	20010209	JP 1999-202179	1999 0715
PRIORITY APPLN. INFO.:			JP 1999-202179	1999 0715

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT
*

AB The compns. contain (a) alkaline-soluble and water-insol. polymer
comprising of I and/or II (X = COR, CH(OH)R, carboxyl; R = H,
(un)substituted hydrocarbon; R1-5 = OH, (un)substituted

(cyclo)alkyl, alkoxy, alkenyl, aralkyl, Ph; Y = alkyl, alkoxy, siloxyl, R0 = H, halogen, (un)substituted aliphatic or aromatic hydrocarbon; l, m, n, q = 0, pos. number; p = pos. number), (b) compds. generating acid on irradiation of active ray or radiant ray, (c) polymers containing acid-decomposable groups and showing increase of solubility to alkaline developer on reaction with acid, and (d) Si-containing nonpolymeric compound containing acid-decomposable groups and showing increase of solubility to alkaline developer on reaction with acid. Far UV photoresists with high sensitivity and resolution are obtained.

IT 280566-60-1

(pos.-working silicon-containing photoresists for micropattern formation in semiconductor device fabrication)

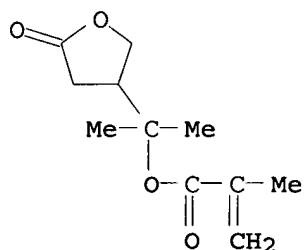
RN 280566-60-1 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl ester, polymer with 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 280566-59-8

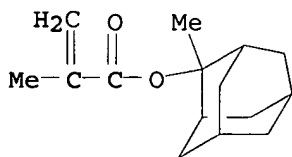
CMF C11 H16 O4



CM 2

CRN 177080-67-0

CMF C15 H22 O2



IC ICM G03F007-075

ICS C08L083-06; G03F007-039; G03F007-36

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38

IT 51350-55-1D, Phenylsilsesquioxane, acetylated 157374-41-9D,

Phenylsilsesquioxane, acetylated 177080-68-1 196709-91-8,

4-Hydroxystyrene-4(1-tert-butoxyethoxy)styrene copolymer

199432-82-1 216308-45-1 279244-37-0 280566-60-1

288620-13-3 289706-85-0 325143-37-1 325143-38-2

325143-39-3 325143-40-6 325143-41-7

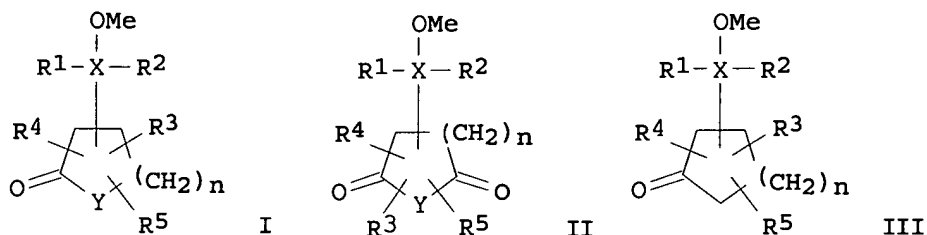
(pos.-working silicon-containing photoresists for micropattern formation in semiconductor device fabrication)

L27 ANSWER 30 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2000:686614 HCAPLUS
 DOCUMENT NUMBER: 133:274251
 TITLE: Positively-working photoresist composition for far-ultraviolet ray photolithography
 INVENTOR(S): Kodama, Kunihiko; Sato, Kenichiro; Aogo, Toshiaki
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 62 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
JP 2000267287	A2	20000929	JP 1999-186809	1999 0630
KR 2000011988	A	20000225	KR 1999-30510	1999 0727
US 6291130	B1	20010918	US 1999-361568	1999 0727
US 6517991	B1	20030211	US 2000-606681	2000 0630
US 2003044718	A1	20030306	US 2002-176067	2002 0621
US 2004161697	A2	20040819		
US 6818377	B2	20041116		
PRIORITY APPLN. INFO.:			JP 1998-263392	A 1998 0917
			JP 1999-6662	A 1999 0113
			JP 1998-211137	A 1998 0727
			JP 1999-186809	A 1999 0630
			US 1999-361568	A3 1999 0727
			US 2000-606681	A3 2000

0630

GI



AB The composition contains a compound discharging acids under active ray or radiation irradiation and a polymer whose solubility in alkaline developer is enhanced because of decomposition of the polymer by the resulting acids. The polymer involves carboxyl-protecting alc. units I, II, and/or III [R1, R2 = H, (substituted) linear, branched, or cyclic alkyl; R1 and R2 may form single or polycyclic group which may contain O, S, N, ketone, ester, imide, or amide group; R3-R5 = H, (substituted) linear, branched, cyclic alkyl, alkoxy; 2 of R3-R5 may form single or polycyclic group as above; X = single bond, divalent group; Y = O, S, NH, N(OH), NR; R = alkyl; n = 1-3]. The far-UV-sensitive photoresist composition is suitable for semiconductor device fabrication, etc.

IT 280566-60-1P 297156-25-3P 297156-27-5P
 297156-28-6P 297156-30-0P 297156-33-3P
 297156-35-5P 297156-39-9P

(far UV-sensitive photoresist composition containing protected carboxy-substituted polymer)

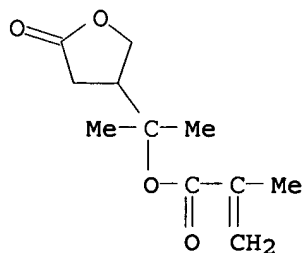
RN 280566-60-1 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl ester, polymer with 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

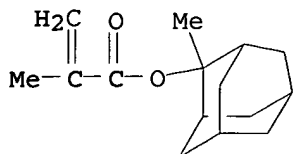
CRN 280566-59-8

CMF C11 H16 O4



CM 2

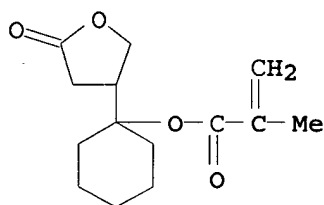
CRN 177080-67-0
CMF C15 H22 O2



RN 297156-25-3 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, polymer with 1-(tetrahydro-5-oxo-3-furanyl)cyclohexyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

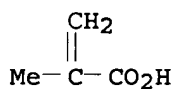
CM 1

CRN 297156-24-2
CMF C14 H20 O4



CM 2

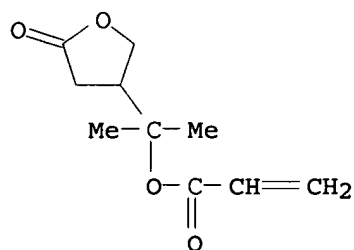
CRN 79-41-4
CMF C4 H6 O2



RN 297156-27-5 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-butyltricyclo[3.3.1.1^{3,7}]dec-2-yl ester, polymer with 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

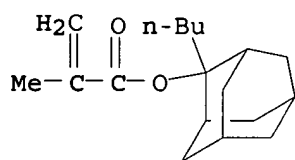
CRN 297156-26-4
CMF C10 H14 O4



CM 2

CRN 209982-54-7

CMF C18 H28 O2



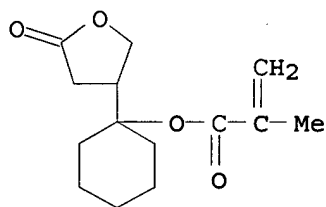
RN 297156-28-6 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-(tetrahydro-5-oxo-3-furanyl)cyclohexyl ester, polymer with (3R,3aS,6R,7R,8aS)-octahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulen-6-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 297156-24-2

CMF C14 H20 O4

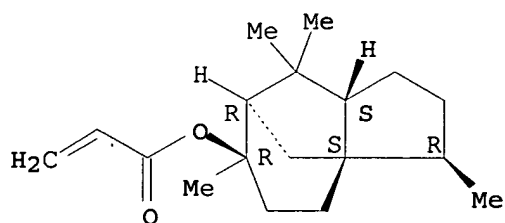


CM 2

CRN 132603-00-0

CMF C18 H28 O2

Absolute stereochemistry.



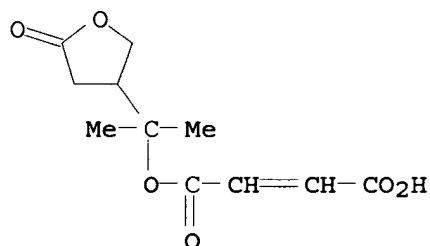
RN 297156-30-0 HCAPLUS

CN 2-Butenedioic acid, mono[1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl] ester, polymer with 1,7,7-trimethylbicyclo[2.2.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 297156-29-7

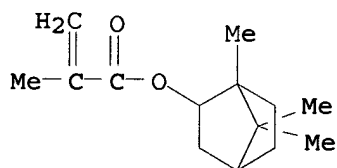
CMF C11 H14 O6



CM 2

CRN 16868-12-5

CMF C14 H22 O2



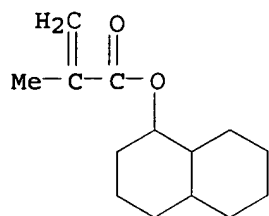
RN 297156-33-3 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, decahydro-1-naphthalenyl ester, polymer with 1-methyl-1-(tetrahydro-2,5-dioxo-3-furanyl)ethyl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 297156-32-2

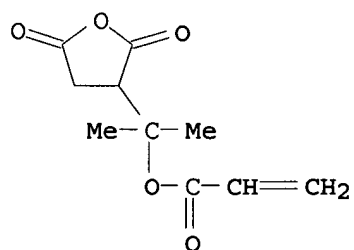
CMF C14 H22 O2



CM 2

CRN 297156-31-1

CMF C10 H12 O5



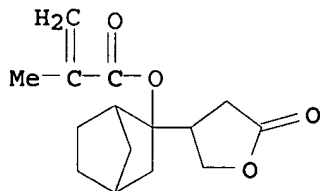
RN 297156-35-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with
 2-(tetrahydro-5-oxo-3-furanyl)bicyclo[2.2.1]hept-2-yl
 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 297156-34-4

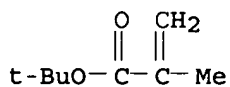
CMF C15 H20 O4



CM 2

CRN 585-07-9

CMF C8 H14 O2

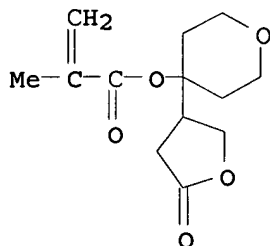


RN 297156-39-9 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, polymer with 1,1-dimethylethyl
 2-methyl-2-propenoate and tetrahydro-4-(tetrahydro-5-oxo-3-
 furanyl)-2H-pyran-4-yl 2-methyl-2-propenoate (9CI) (CA INDEX
 NAME)

CM 1

CRN 297156-38-8

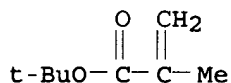
CMF C13 H18 O5



CM 2

CRN 585-07-9

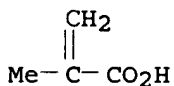
CMF C8 H14 O2



CM 3

CRN 79-41-4

CMF C4 H6 O2



IC ICM G03F007-039

ICS H01L021-027; C08F020-26

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)

Section cross-reference(s): 76

IT 280566-60-1P 288303-55-9P 297156-25-3P

297156-27-5P 297156-28-6P 297156-30-0P

297156-33-3P 297156-35-5P 297156-37-7P

297156-39-9P 297156-40-2P 297156-42-4P 297156-44-6P

297156-46-8P 297156-48-0P 297156-51-5P 297156-52-6P

297156-53-7P 297156-55-9P 297156-57-1P 297156-58-2P

297156-59-3P

(far UV-sensitive photoresist composition containing protected

carboxy-substituted polymer)

L27 ANSWER 31 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2000:474297 HCAPLUS
 DOCUMENT NUMBER: 133:96798
 TITLE: Pattern formation using positive-working photoresist
 INVENTOR(S): Sato, Kenichiro; Nakao, Hajime; Kawabe, Yasumasa
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 32 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000194135	A2	20000714	JP 1998-371210	1998 1225
PRIORITY APPLN. INFO.:			JP 1998-371210	1998 1225

GI



AB The title process comprises the steps of (i) coating, on a substrate, a pos.-working photoresist composition for far UV ray exposure, containing (a) a compound which generates an acid by irradiation with activating ray or radiation and (b) a resin which contains alkali-soluble groups protected with ≥ 1 of the groups having alicyclic hydrocarbon structures I, CR12R13R14, CH(OR15)R16, CR19R21CR17:CR18R20, CR22R25CHR23COR24, and II (R11 = Me, Et, Pr, iso-Pr, Bu, iso-Bu, sec-Bu; Z = atoms required to form an alicyclic hydrocarbon group along with the C atom; R12-16 = C1-4 straight-chain or branched alkyl or alicyclic hydrocarbon, ≥ 1 of R12-14 and either R15 or R16 are alicyclic hydrocarbons; R17-21 = H, C1-4 straight-chain or branched alkyl or alicyclic hydrocarbon, ≥ 1 of R17-21 is an alicyclic hydrocarbon, either R19 or R21 is a C1-4 straight-chain or branched alkyl or alicyclic hydrocarbon; R22-25 = C1-4 straight-chain or branched alkyl or alicyclic hydrocarbon, ≥ 1 of R22-25 is an alicyclic hydrocarbon) and is cleaved by the action of acid to increase the solubility to alkali, (ii) patternwise exposing the coating to activating ray or radiation, and (iii) developing the exposed coating with an aqueous organic alkali solution in the presence of a surfactant. High resolution resist patterns showing improved coarse-dense dependence are formed by using far UV rays, especially, ArF excimer laser beams.

IT 280566-60-1P
(photoresist composition containing acid generator and polymer with alicyclic protective group)

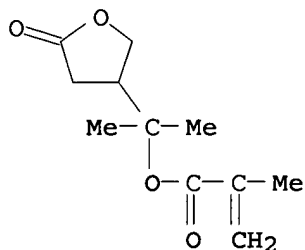
RN 280566-60-1 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-5-oxo-3-furanyl)ethyl ester, polymer with 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 280566-59-8

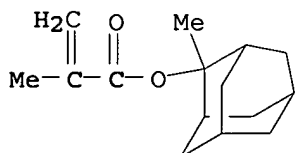
CMF C11 H16 O4



CM 2

CRN 177080-67-0

CMF C15 H22 O2



IC ICM G03F007-039

ICS G03F007-32; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38

IT 177080-68-1P 181531-13-5P 195000-67-0P 195000-69-2P
258341-99-0P 280566-51-0P 280566-53-2P 280566-55-4P
280566-56-5P 280566-60-1P

(photoresist composition containing acid generator and polymer with alicyclic protective group)

L27 ANSWER 32 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:519010 HCAPLUS

DOCUMENT NUMBER: 131:191866

TITLE: Radiation-sensitive resin composition for chemically amplified photoresist

INVENTOR(S): Suwa, Mitsufumi; Iwasawa, Haruo; Yamamoto, Masafumi; Kajita, Toru

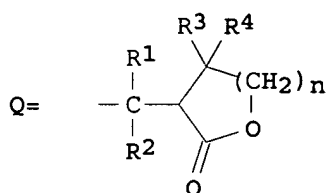
PATENT ASSIGNEE(S): JSR Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 23 pp.

DOCUMENT TYPE: CODEN: JKXXAF
 LANGUAGE: Patent
 FAMILY ACC. NUM. COUNT: Japanese
 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11223950	A2	19990817	JP 1998-37944	1998 0205
PRIORITY APPLN. INFO.:				JP 1998-37944 1998 0205

GI



AB The composition comprises (A) an alkali insol. or slightly alkali soluble resin having a lactone ring-containing group Q (R1-4 = H, C1-6 linear or branched alkyl, 5- to 8-membered cyclic alkyl; R1 and R2 or R3 and R4 may form 5- to 8-membered cyclic alkyl; n = 1-4) which releases by acids, and when the group itself and/or the lactone ring releases, the resin becomes alkali soluble and (B) a radiation-sensitive acid generator. The composition has high transparency and resolution to radiation, and is especially useful for manufacturing semiconductor devices.

IT 239784-46-4P 239784-47-5P 239784-48-6P
 239784-81-7P

(radiation-sensitive composition containing resin having acid-releasable group with lactone ring for chemical amplified photoresist)

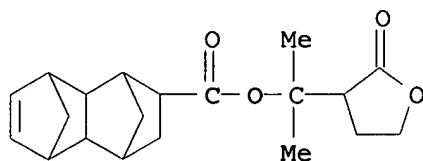
RN 239784-46-4 HCAPLUS

CN 1,4:5,8-Dimethanonaphthalene-2-carboxylic acid,
 1,2,3,4,4a,5,8,8a-octahydro-, 1-methyl-1-(tetrahydro-2-oxo-3-furanyl)ethyl ester, polymer with 2,5-furandione (9CI) (CA INDEX NAME)

CM 1

CRN 239784-42-0

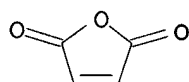
CMF C20 H26 O4



CM 2

CRN 108-31-6

CMF C4 H2 O3



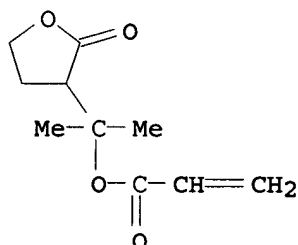
RN 239784-47-5 HCAPLUS

CN 2-Propenoic acid, 1-methyl-1-(tetrahydro-2-oxo-3-furanyl)ethyl
 ester, polymer with tricyclo[3.3.1.1.3]dec-1-yl 2-propenoate
 (9CI) (CA INDEX NAME)

CM 1

CRN 239784-43-1

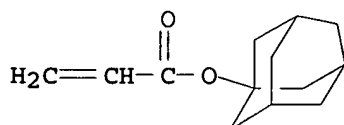
CMF C10 H14 O4



CM 2

CRN 121601-93-2

CMF C13 H18 O2



RN 239784-48-6 HCAPLUS

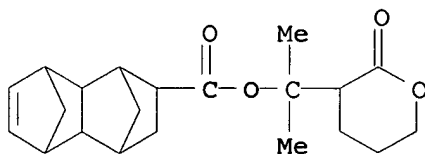
CN 1,4:5,8-Dimethanonaphthalene-2-carboxylic acid,
 1,2,3,4,4a,5,8,8a-octahydro-, 1-methyl-1-(tetrahydro-2-oxo-2H-

pyran-3-yl)ethyl ester, polymer with 2,5-furandione (9CI) (CA INDEX NAME)

CM 1

CRN 239784-44-2

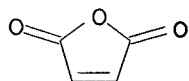
CMF C21 H28 O4



CM 2

CRN 108-31-6

CMF C4 H2 O3



RN 239784-81-7 HCAPLUS

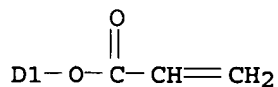
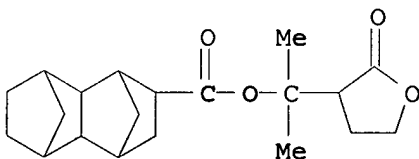
CN 1,4:5,8-Dimethanonaphthalene-2-carboxylic acid, decahydro-6(or 7)-[(1-oxo-2-propenyl)oxy]-, 1-methyl-1-(tetrahydro-2-oxo-3-furanyl)ethyl ester, polymer with tricyclo[3.3.1.3.1]dec-1-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 239784-79-3

CMF C23 H30 O6

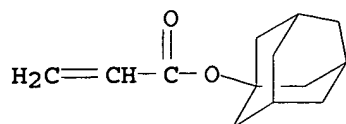
CCI IDS



CM 2

CRN 121601-93-2

CMF C13 H18 O2



IC ICM G03F007-039
ICS H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38
IT 239784-46-4P 239784-47-5P 239784-48-6P
239784-49-7P 239784-81-7P 239784-82-8P
(radiation-sensitive composition containing resin having acid-releasable group with lactone ring for chemical amplified photoresist)

L27 ANSWER 33 OF 33 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:56806 HCAPLUS

DOCUMENT NUMBER: 130:160673

TITLE: Positive-working photoresist with high transparency to ArF excimer laser and high resolution

INVENTOR(S): Haneda, Hideo; Sato, Kazushi; Komano, Hiroshi

PATENT ASSIGNEE(S): Tokyo Ohka Kogyo Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11015162	A2	19990122	JP 1997-171947	1997 0627
US 6087063	A	20000711	US 1998-102622	1998 0623
US 6225476	B1	20010501	US 2000-542952	2000 0404
JP 2004231971	A2	20040819	JP 2004-100511	2004 0330
PRIORITY APPLN. INFO.:			JP 1997-171947	A 1997 0627
			US 1998-102622	A3 1998 0623

AB The photoresist comprises (A) an acrylic resin
[CH2CHR1(CO2CR2R3R4)] (R1 = H, Me; R2-3 = lower alkyl; R4 =

residue of a lactone, a ketone, or an ester) whose alkali solubility is changed by acids and (B) an acid generator releasing acids by radiation. The photoresist shows good affinity to alkalis and is suited for paddle development.

IT 220196-44-1P 220196-45-2P 220196-52-1P

(pos. photoresist containing lactone-, ketone-, or ester-branched acrylic resin and showing good transparency to excimer laser)

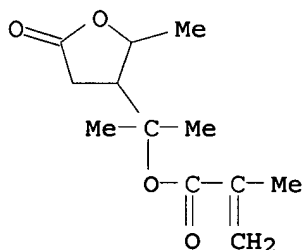
RN 220196-44-1 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-2-methyl-5-oxo-3-furanyl)ethyl ester, polymer with tetrahydro-4,4-dimethyl-2-oxo-3-furanyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 220196-43-0

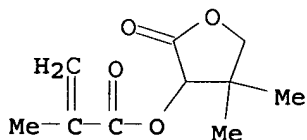
CMF C12 H18 O4



CM 2

CRN 156938-13-5

CMF C10 H14 O4



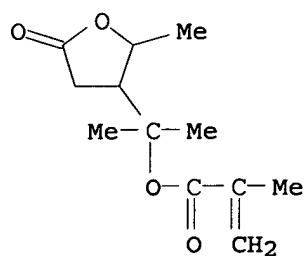
RN 220196-45-2 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-2-methyl-5-oxo-3-furanyl)ethyl ester, polymer with 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 220196-43-0

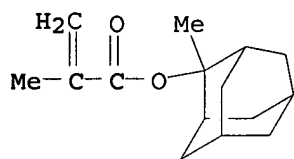
CMF C12 H18 O4



CM 2

CRN 177080-67-0

CMF C15 H22 O2



RN 220196-52-1 HCAPLUS

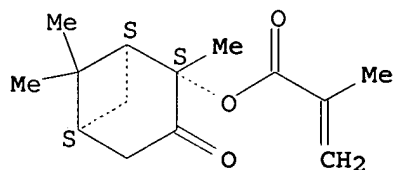
CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-(tetrahydro-2-methyl-5-oxo-3-furanyl)ethyl ester, polymer with rel-(1R,2R,5R)-2,6,6-trimethyl-3-oxobicyclo[3.1.1]hept-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 220196-50-9

CMF C14 H20 O3

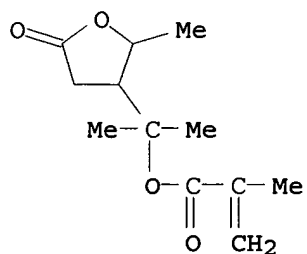
Relative stereochemistry.



CM 2

CRN 220196-43-0

CMF C12 H18 O4



IC ICM G03F007-039
 ICS G03F007-004; G03F007-033; H01L021-027
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
 Other Reprographic Processes)
 Section cross-reference(s): 38
 IT 220196-41-8P 220196-42-9P **220196-44-1P**
220196-45-2P 220196-48-5P 220196-49-6P 220196-51-0P
220196-52-1P
 (pos. photoresist containing lactone-, ketone-, or ester-branched
 acrylic resin and showing good transparency to excimer laser)